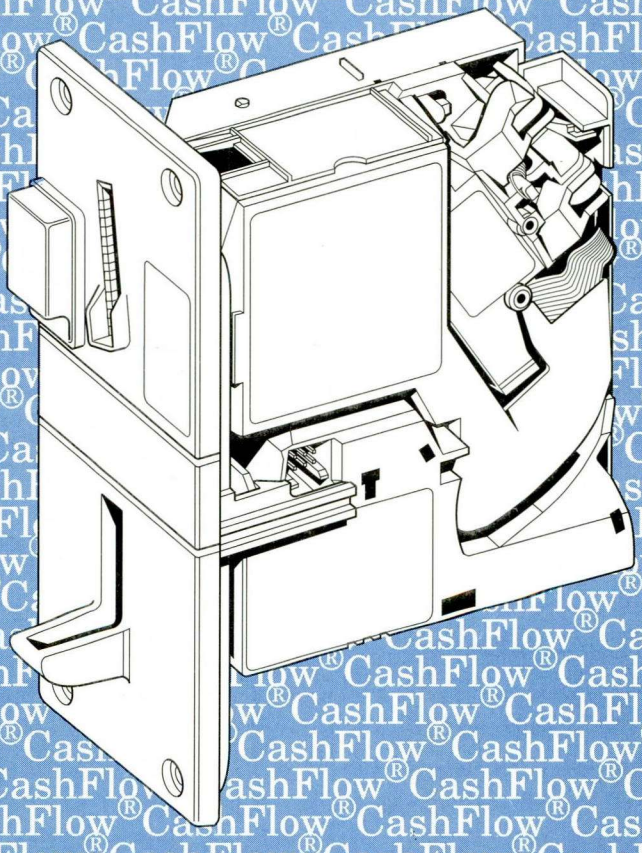
The

CASHFLOW® 340

REFERENCE SERIES

CREDITOR

APPLICATIONS DESIGN GUIDE



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SAFETY

International & National Standards Conformance

When installed and operated according to the instructions for the particular unit, CashFlow® 340 products are designed to meet the applicable safety standards for any country in which they are used.

Maximum Operating Voltages

Do not apply more than the indicated voltage.

Dangerous Environments

Do not operate in the presence of flammable gases, fumes or water.

Disposal of Product

Do not dispose of this product by incineration.

Warning: Before removing or replacing modules **SWITCH OFF or ISOLATE the ELECTRICITY SUPPLY** to the host machine.

THIS MANUAL IS PROVIDED FOR USE ONLY BY PERSONNEL TRAINED TO UNDERTAKE ELECTRICAL INSTALLATION.

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GLOSSARY

Accept Gate	Control gate that routes coins/tokens to accept or reject route.
Acceptor	Discriminator assembled together with an accept gate and back cover.
Back Cover	Moulding that provides various mountings for the acceptor facilitating optional routing.
Coin entry	The point at which coins enter the throat of the acceptor.
Coin exits	Routing from the accept gate.
Coin set	Defines the coin types that the creditor will accept.
Coin type	Coin denomination, for example, a 20p piece.
Discriminator	A mechanism that accepts coin/tokens of different values and electronically compares their characteristics with a set of pre-programmed criteria. Those coins that meet the requirements are directed towards an accept route, and those that fail go to a reject route.
Flight deck	The main component of the discriminator, providing the initial path to be taken by coins.
Front Plate	Accessory facilitating the mounting of the product to the front of the host machine.
Inhibit lines	A set of electrical lines controlled by the host machine that stops acceptance of one or more coins.
Interface	The electrical or mechanical boundary between the creditor and the host machine.
Parallel Interface	Additional facilities and benefits accessed via range of optional customer interface PCB's.
Serial Interface	All standard interface functions made directly through host machine. Also called HI^2.
Snubber	Facility used to absorb impact of coin entry and reduce impetus through flight deck.

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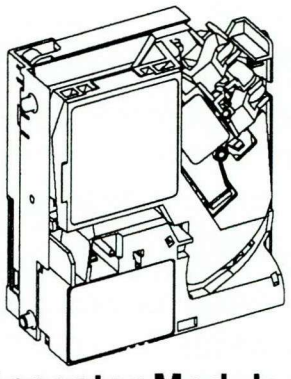
OVERVIEW

The CashFlow® 340 product is available in a variety of configurations. These are for the Maxi front plate, the Mini front plate and the Midi front plate.

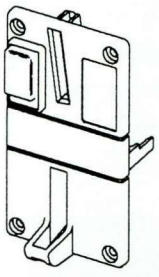
At the heart of all of these is the acceptor module which controls the discrimination and coin routing functions.

An optional 4 digit backlit LCD display for use in conjunction with the Mini and Midi front plate versions is available.

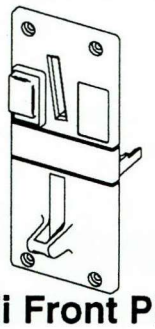
The operating voltage for all versions is 12v DC.



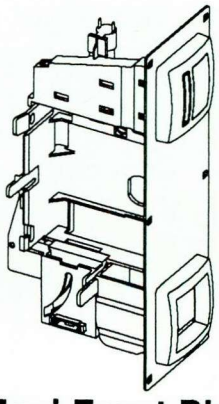
Acceptor Module



Mini Front Plate



Midi Front Plate



Maxi Front Plate

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PRODUCT OPERATION

COIN ACCEPTANCE

The functionality of the CashFlow®340 creditor is described in the following sections, under the headings of Mechanical, Electrical and Operational.

MECHANICAL

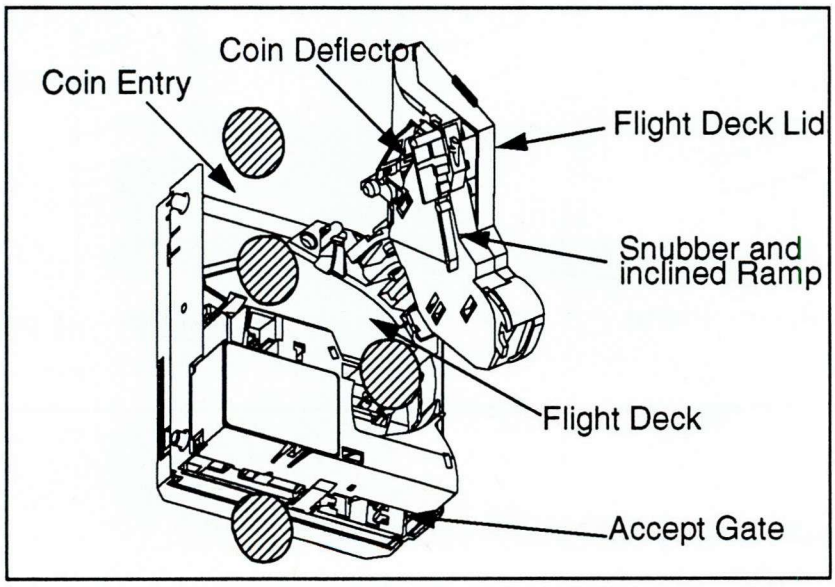
The acceptor is built up from the following modules, each of which is available in a number of variants:

- Discrimination module
- Back Cover
- Accept Gate module
- Interface PCB
- PCB Cover

The discrimination module comprises a flight deck and flight deck lid which control the coin entry and flow path. The coin deflector and Snubber serve to bring coins under control by removing or dampening their inherent kinetic energy.

The coin deflector is a mechanical device incorporated near the coin entry point to direct coins towards the snubber and against the face of the flight deck.

Once under control coins roll down an inclined ramp, which is part of the flight deck lid, and past discrimination sensors behind the flight deck and flight deck lid until leaving the end of this ramp and entering the accept gate module.



Coin Path through Acceptor.

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The flight deck is hinged at the top right side to allow coupling with the flight deck lid via an intermediate component (lid arm) permitting the lid to locate accurately to the Deck independently of the hinge spring and the tolerances associated with it.

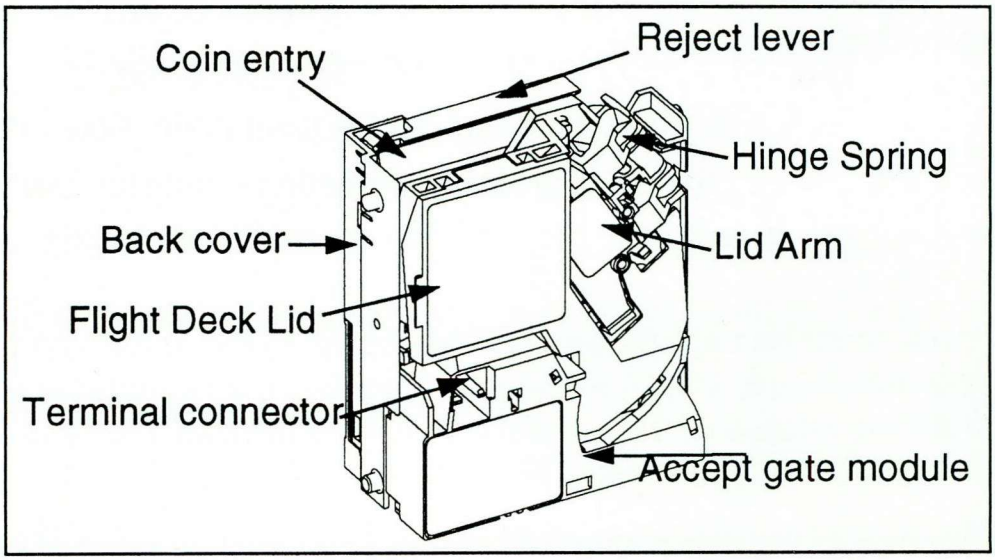
The lid maintains a parallel coin throat by being located on three bosses which position the lid in all three axis when subject to the closing force exerted by a tension spring between the deck and lid arm.

The design of the lid arm/hinge area allows the Lid to open to 100 degrees relative to the deck, facilitating access for cleaning.

The opening is restricted by the back cover to prevent the lid fouling adjacent parts such as the front plate.

If the reject lever is operated the flight deck lid is raised so that it remains parallel to the flight deck. This has the benefit of not funneling coins into a narrowing gap as they roll or fall and possibly create a further jam.

This also means that the creditor can be defined within a smaller envelope as the edge of the lid furthest from the hinge does not have to open more to give greater clearance at the hinge end.



Acceptor with top entry back cover used

The action of the hinge spring is an "over-centre" one which means that the lid will be held open when past about 100 degrees and will "snap" shut when closed to below about 60 degrees.

The discrimination module provides a mounting for the discrimination PCB connection and to the accept gate module via a flexible interconnect cable.

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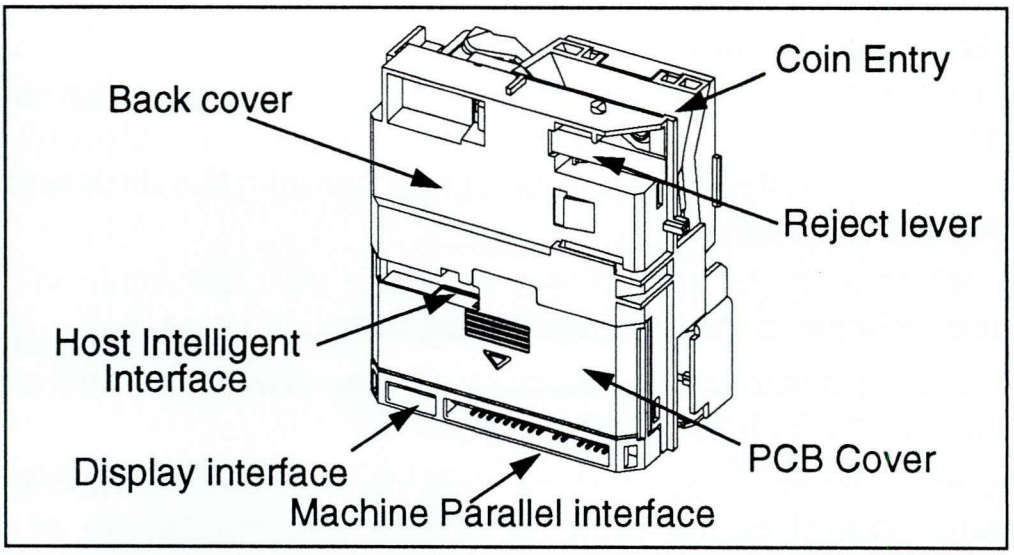

Acceptor with front entry back cover used

The back cover, which incorporates the reject lever assembly, clips to the discrimination module and provides protection for the discrimination PCB. There are two variants of back cover:

Top Entry, used for Maxi front plate mounting.

Front Entry, used for Mini & Midi front plate mounting.

These back covers provide appropriate mounting points for use with either the Maxi, Mini or Midi front plates.

The back cover has apertures to allow access to the serial interface and the remote expansion interface. In addition, a removable PCB cover allows access to the interface PCB and parallel interface.

The position of the reject lever will depend on which version of back cover is being used. Clearance of debris and jammed coins from the creditor can be achieved by use of the reject lever.

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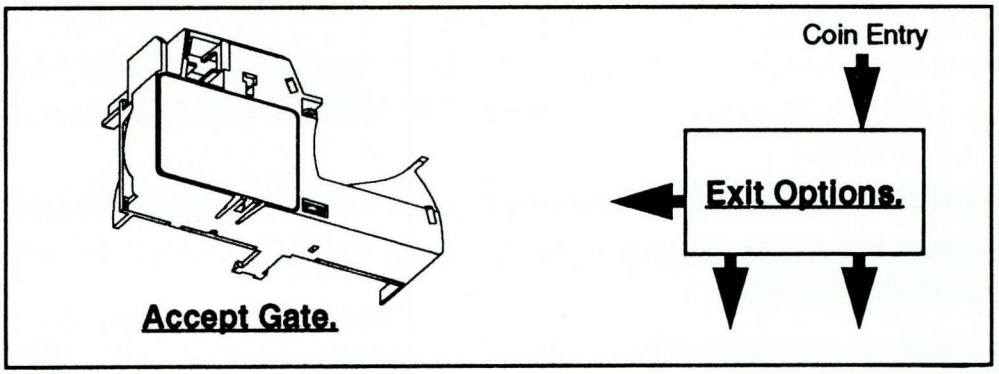
The accept gate module contains a solenoid-operated gate, optical coin strobes and routing components. The module clips and plugs onto the flight deck. Three variants of accept gate module are available. The coin exits for both accepted and rejected coins are defined by the type of accept gate module fitted and can be one of the following:

- Accept right down / Reject left down
- Accept right down / Reject left side
- Accept left down / Reject right down

The standard accept gate solenoid is driven from 12V supply.



The table below shows the mechanical build standards available.

Back Cover	Accept Gate Module Exits
Front Entry	RD / LS
Top Entry	RD / LD
Top Entry	LD / RD

Note:

In the above table: RD = Right Down; LS = Left Side; LD = Left Down

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ELECTRICAL

The CashFlow® products are based on a serial interface, 12v, discrimination PCB. The circuitry is contained within a single PCB mounted on the rear of the flight deck behind the back cover. All internal connections to this discrimination PCB are via a flexible interconnect PCB.

Internal connections are to the sensors on the flight deck and flight deck lid and to the accept solenoid and optical strobes in the accept gate module via the connector through the accept gate module.

External connections to the discrimination PCB are via staked pins, accessible through apertures in the back cover. Additional staked pins on the discrimination PCB allow the video credit interface PCB to be connected.

The electronics on the Discrimination PCB operate from 5v generated by an on-board regulator from the 12v customer supply via the interface PCB.

Coins are discriminated by inductive sensors mounted on both the flight deck and flight deck lid. These sensors allow a number of coin parameters to be measured which relate to the coins' thickness, diameter and material type. The processing of these parameters is performed by the micro-controller and compared against limits stored within a non-volatile memory.

Coins satisfactorily discriminated are routed to the accept exit by energising the accept gate. Coins not accepted will be routed to the reject exit. Accepted coins will generate a credit as they pass through the coin strobes in the accept exit. The strobes consist of two pairs of LED's and photo-transistors mounted in the accept gate module, opposite prisms mounted on the lower part of the flight deck.

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OPERATIONAL

A coin offered to the creditor has its validity determined using the discrimination process. This process involves matching the payment's measured parameters with parameters stored in non-volatile memory.

A coin's identity consists of a coin type number and a coin type status code. The coin type status code defines whether a coin is in fact a coin or a token. If a match is found then the payment is given the value of the corresponding stored data.

Next, the inhibit status of the payment is checked, and if the payment is not inhibited it will be accepted. Inhibit status is determined from either the coin inhibit map stored in non-volatile memory or from the video credit interface. Video credit interface inhibit information overrides the coin inhibit map.

If a payment is accepted the accept gate will be opened. Credit signalling is delayed until the coin has passed the accept gate. Once the payment has passed the accept gate, the gate will be closed.

When payment has been confirmed, acceptance of further payments is permitted. If a fraud is detected, the creditor will inform its host machine, and the appropriate output signal will be activated. Acceptance of any further payments will be inhibited for one second after the host has been informed.

If a payment is rejected, either due to it failing the discrimination process, or because it has been inhibited, the accept gate will not be opened and further coin acceptance will be inhibited for a period of 500ms. If a following coin is thus rejected, this time period will be restarted.

If the reject lever is operated, causing the lid to open, a pulse will be generated and, if an appropriate interface is fitted, an output signal will be activated.

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COIN ACCEPTANCE RATE

The acceptor module can validate at a rate of up to 2.5 coins per second.

Coins closer than this may be rejected. After a coin has been rejected no further coins will be accepted for a period of 500ms. Should further coins enter the acceptor module during this period the reject period will be re-initiated.

The Cashflow® creditor will operate with all coins and tokens that are validated by the acceptor module.

RELIABILITY

The design target is the following:

Mean Coins Between Failure

Acceptors:	< 1 in 300k excluding coin jams cleared by reject operation.

Mean Time Between Failures

Acceptors:	< 2.5% of field base per annum for any non-coin related failure requiring a service call out.
Other:	
Connectors:	Mars® Route Alpha 250 terminal Connector; 100 insertions.
	Electromechanical modules; 50 insertions.
	PCB based modules; 50 insertions.

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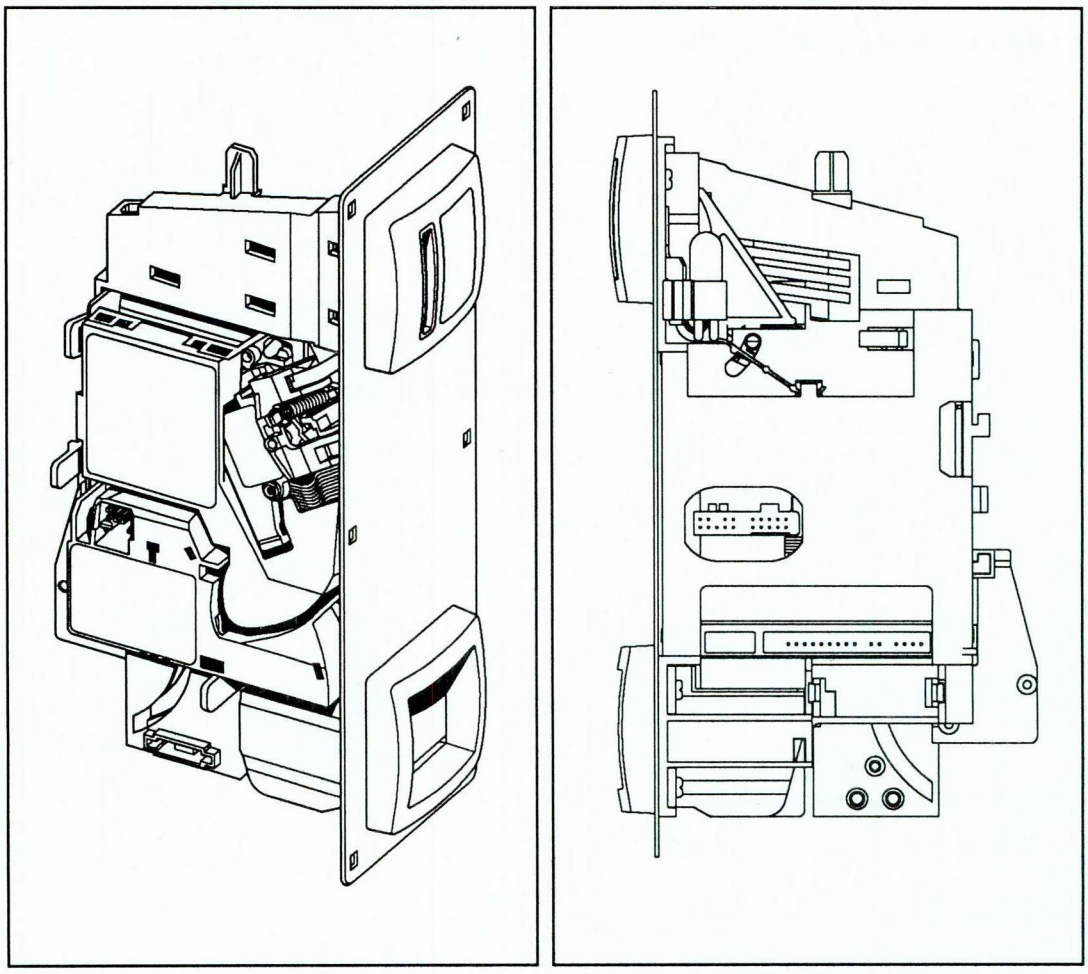
PRODUCT VARIANTS

MAXI FRONT PLATE



MOUNTING

In adaptor moulding/front plate assembly attached to face of the host machine

INTERFACE

External Interface

Serial
Parallel - Video Credit

Interface P.C.B.

Robust Video Credit Interface (RVCI)

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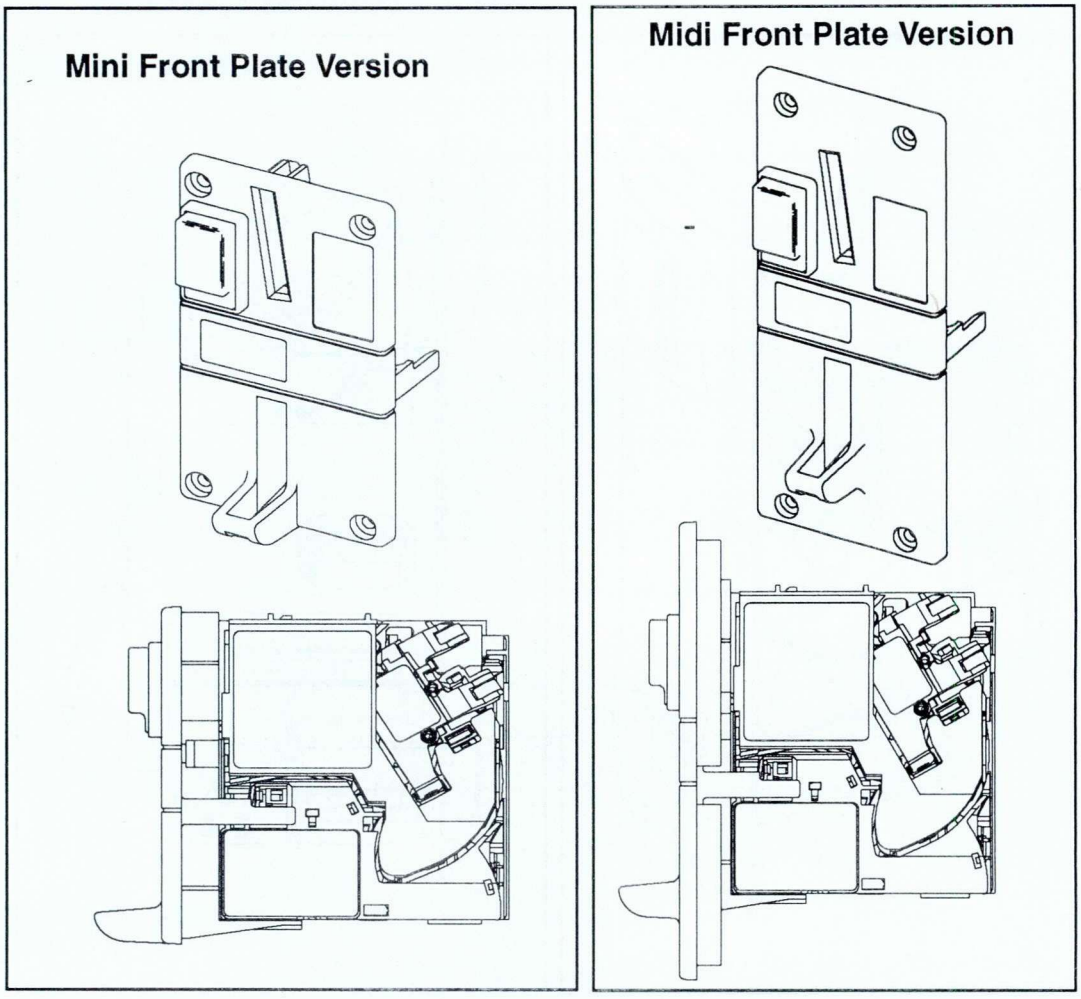
PRODUCT VARIANTS

MINI and MIDI FRONT PLATE



MOUNTING (for both versions)

In front plate assembly to the front of the host machine

INTERFACE

External Interface

Serial
Parallel - Video Credit

Interface P.C.B.

Robust Video Credit Interface (RVCI)

DISPLAY

A 4 digit backlit LCD credit display option is available for use with both Mini and Midi front plates.

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ELECTRICAL INTERFACES

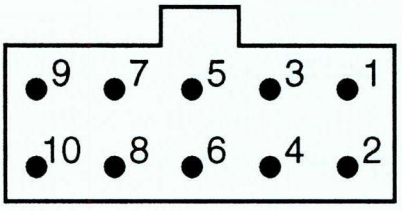
HOST INTELLIGENT INTERFACE (HI^2)

The HI^2 interface offers serial control of the following functions:

- Inhibiting Coins
- Enabling Coins
- Allocating Coin Values
- Defining Game Prices
- Specifying Bonus Levels
- Configuring Credit Modes
- Setting Test Credit Mode

The connections to the 10 way connector of the HI^2 are shown below.

1	DATA	2	GND
3	BUSY	4	GND
5	RESET	6	POWER FAIL
7	VIN	8	VNEG
9	RESERVED	10	VSOL



Viewed from loom end

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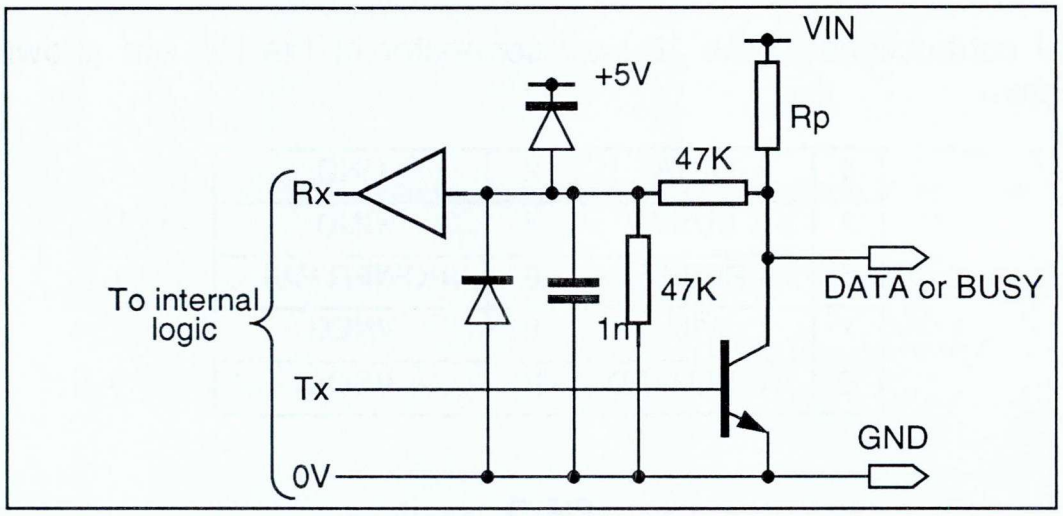
Electrical Specifications

I/O Ports

Data and Busy

Input high voltage	Vih	8.0V min. max	VIN + 1.5V
Input low voltage	Vil	GND - 1.5V min	1.3V max.
Input impedance	Rp	4.7KΩ nom. to VIN	
Output high voltage	Voh	9.0Vmin.	VIN max.
Output low voltage	Vol	GND min.	0.5V max.
Output sink current	Iol	-------	25mA max.



Data and Busy line equivalent circuit

The Data and Busy lines are active low signals and are designed to be wire-ORed with other HI^2 nodes. The selector represents an HI^2 system load of 3 units.

Reset

Input high voltage	Vih	Open circuit or > 3.5V (5.5V max.)
Input low voltage	Vil	(GND - 0.5V) min. 0.9Vmax.
Input impedance	Rp	47kΩ nom. to + 5V
Input capacitance	Cin	1.5µF nom.
Input series resist.	Rserl	56Ω nom.

In addition to the on-board power-on reset circuit, an external device

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may reset the system by pulling RESET low. The RESET line is active low and is intended to be driven by an open collector transistor referenced to 0V. A series resistor is provided to limit the peak current drawn when the on-board reset capacitor is discharged by an external device.

PF (Power Fail)

Input high voltage	Vih	3.7V min.	5.5V max.
Input low voltage	Vil	(GND - 0.5V) min.	0.9Vmax.
Input impedance	Rp	4.7kΩ nom. to + 5V	

In addition to the on-board power fail circuit, there is an input on the host connector to allow an external device to warn of an impending power failure. The power fail input is active low and is intended to be driven by an open collector transistor referenced to 0V.

VIN (Power)

Input supply voltage	Vin	10V min. 15V max. (Abs.max. not operational 20V)
Supply voltage ripple	Vrip	Within Vin min. to max. up to 100Hz 250mV pk-pk frequencies > 100Hz
Supply rise time	Trise	75ms max.
Input current	Iin	500mA max.

VIN is the input supply voltage referenced to the supply return, VNEG.

VNEG is connected to GND on the acceptor.

LOCAL EXPANSION INTERFACE

The local expansion interface is provided on the CashFlow® 340 creditor to allow connection of the interface PCB. The interface consists of two sets of staked pin connectors along the lower edge of the discrimination PCB, behind the interface PCB cover. The interface can only be used for connection to MEI supplied interface PCB's.

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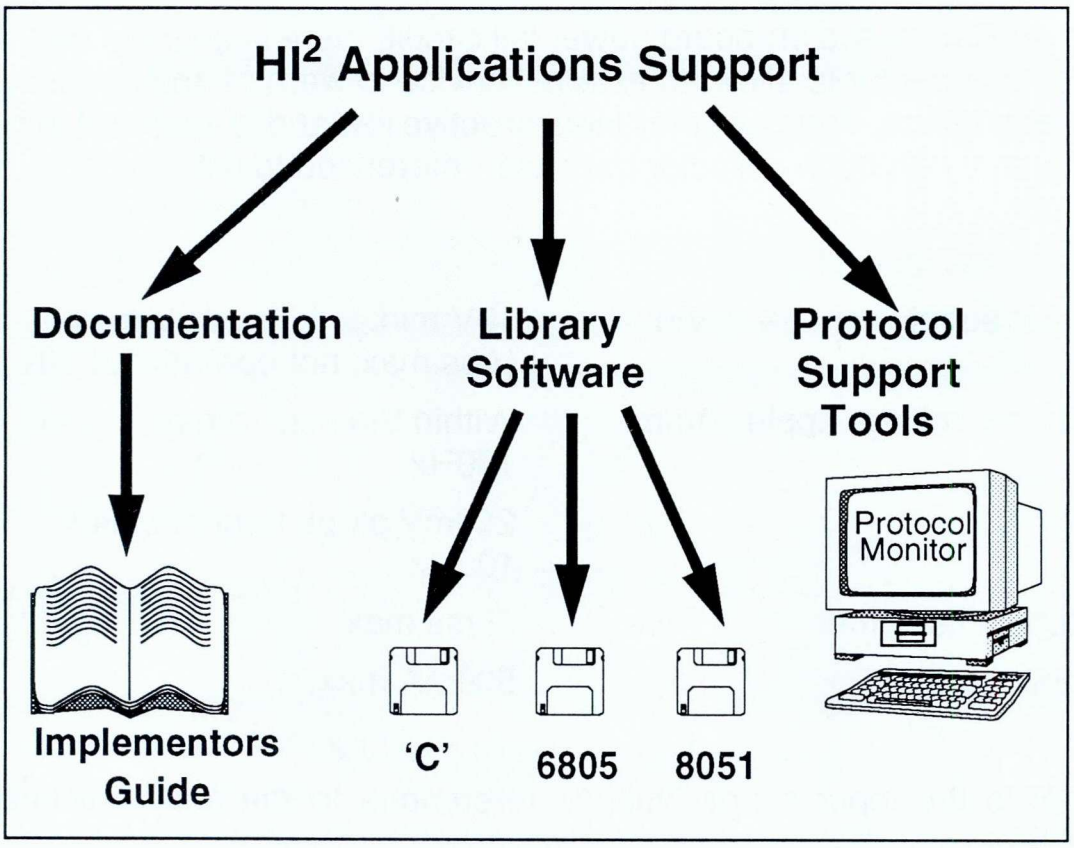
APPLICATIONS SUPPORT

The Host Intelligent Interface (HI^2) is a high functionality interface for point to point or multi node systems.

It is currently only available under licence and confidentiality agreements.

Applications support for HI^2 is in the form of documentation and support. These are all intended to make it straightforward to design-in the interface.



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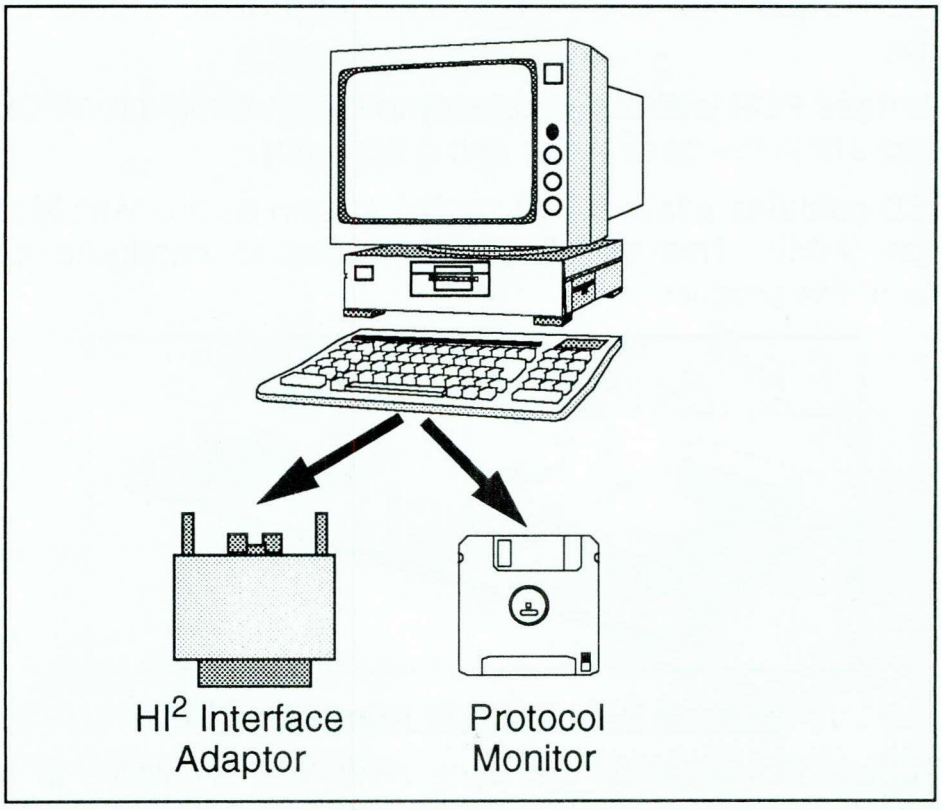
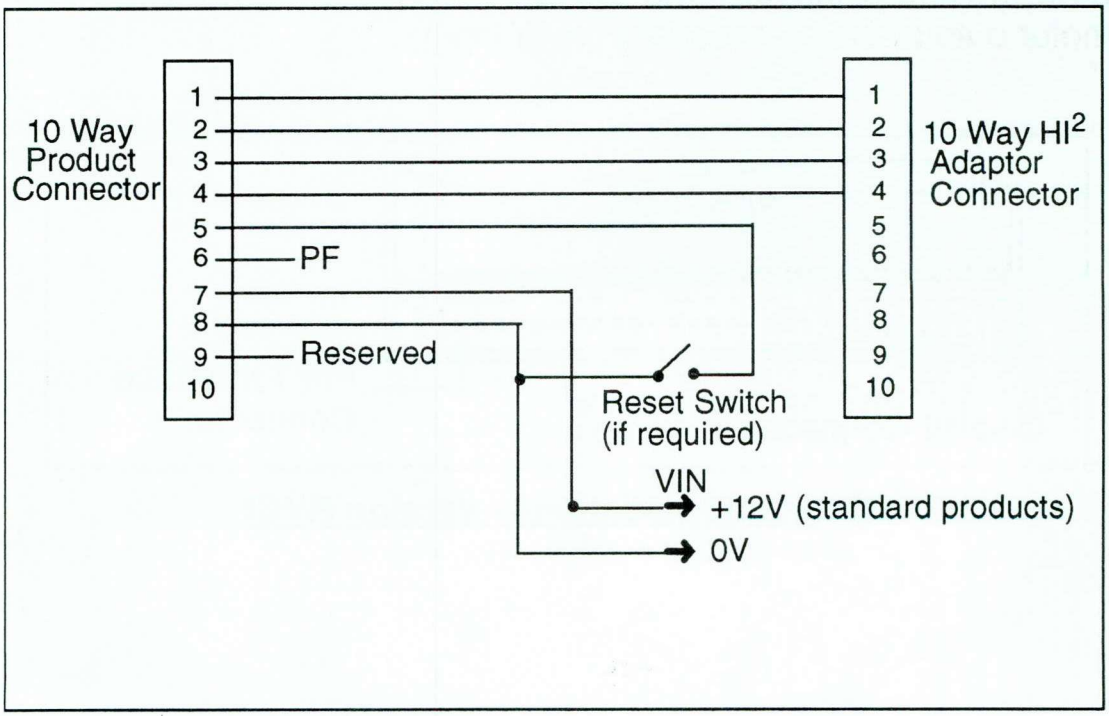
SUPPORT TOOLS

With the use of a HI^2 interface adaptor and with the aid of the special "Protocol Monitor" software application it is possible to connect a PC serial port to the HI^2 signals.



The adaptor should be plugged into the PC serial port and wired to the HI^2 bus as shown below.



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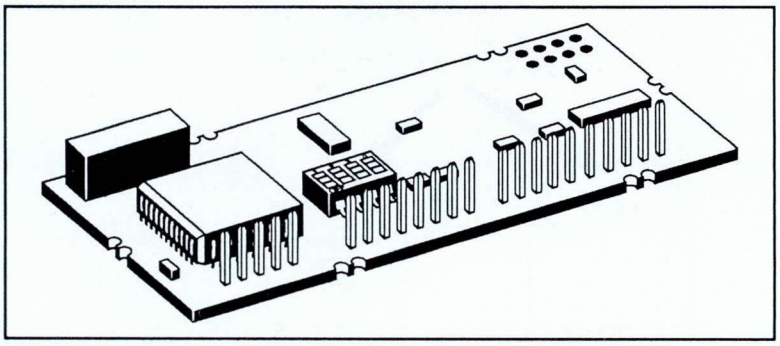
MACHINE INTERFACE PCB's

All CashFlow® coin products incorporate a serial machine interface called HI^2 which offers maximum configuration flexibility.

The video credit interface PCB is used to provide a parallel host interface.

The interface PCB is attached directly to the discrimination PCB and enclosed within the back cover of the acceptor.

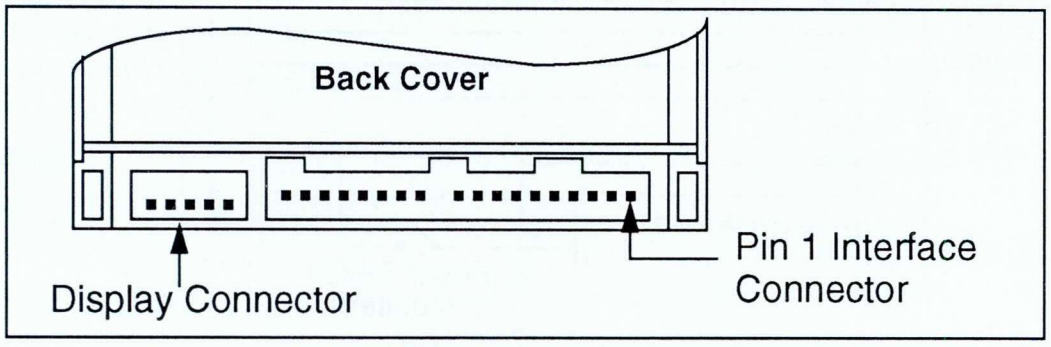
The PCB contains a four-bit DIL switch known as the Man Machine Interface (MMI). This switch can be used to configure certain aspects of the product.



Robust Video Credit Interface PCB

The Robust Video Credit Interface (RVCI) is available in single player and 4 player versions with appropriate dispense inputs and outputs.

Both provide a player lamp output, an entry lamp output, a coin meter output and a secondary credit input.



Connector locations - version RVCI

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FUNCTIONALITY

The video credit interface PCB contains a masked microprocessor which performs the credit accumulation and host interface functions. The microprocessor communicates with the discrimination processor via the local expansion interface.

Profile specific set-up information is contained within the non-volatile memory on the discrimination PCB and is passed on at power-up. Credit is stored in volatile memory within the interface processor and will be lost if power is removed.

On receipt of a confirmed non-fraudulent payment, the interface processor assigns the appropriate value to the payment type accepted and adds this value to the accumulated credit. If the coin meter option is enabled, the processor will send an appropriate number of pulses, for the payment type accepted, to the coin meter output.

The creditor can be configured for either single or multi-player operation and for either automatic or manual credit dispense in the single player configuration. In automatic credit dispense mode, the appropriated number of game pulses will be dispensed when the accumulated credit exceeds the game price.

In manual credit dispense mode, a single game pulse will be dispensed, to the appropriate player output, each time a dispense input becomes active and sufficient game credits exist.

If the creditor is configured for multi-player operation credit dispense mode is implied, but should in any case be enabled to ensure correct functioning of the product.

In manual credit dispense mode, the creditor will drive the player lamp output to indicate that there are game credits available. The lamp(s) will flash ON for 0.5 sec. and OFF for 0.5 sec. when game credits exist.

The creditor has a programmable maximum games limit which, if exceeded, will cause coin acceptance to be disabled.

The creditor can be configured to give additional games at two defined bonus credit levels. The number of additional games for each bonus level is programmable. The additional games will be given provided the bonus credit level is reached within a programmable time period.

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The creditor can accept a credit input from an external device such as a mechanical coin mechanism or bill validator. The credit value associated with the input is programmable. Appropriate coin meter pulses will be generated in response to an external credit input.

DISPLAY FUNCTIONS

An optional external display may be connected to the creditor via the display interface. The type of information displayed can be any one of the following modes, but not nescessarily all of them:

Incrementing games.

Shows 0000 when idle, counts games as credit increases.

Decrementing credit.

Display shows game price when idle. Decrements to 0

Mixed Credit / Games

Display shows game price when idle, plus number of games, counts down to 0 as credit increases, then counts up number of games.

COIN ENTRY LAMP

The coin entry lamp is used to indicate the following:

Lamp ON continuously

Indicates that the creditor is functioning normally.

Lamp OFF

Indicates that the creditor detects an internal fault.

Lamp Flashing

(ON for 1.0 sec., OFF for 1.0 sec.)
Indicates a fraud condition has been detected.

Display Options

	GAMING Single Line Output Normal mode	GAMING Single Line Output Credit Dispense	GAMING Four Line Pulse Output
Incrementing games	✖	✖	✖
Decrementing credit	✓	✖	✖
Mixed Credit/ Games	✖	✓	✓

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The player 1 output is defined as outputs PLAYER1HI and PLAYER1LO, and all other player outputs as PLAYER2-4. The player lamp output is defined as PLAMP, the entry lamp as ELAMP and the coin meter output as CMETER. The dispense inputs are defined as DISP1-4 and the credit input as CREDIT

Conn Pin	Signal Name
1	CREDIT
2	VSUPPLY
3	ELAMP
4	VSUPPLY
5	CMETER
6	GND
7	PLAMP
8	VSUPPLY
9	PLAYER1HI
10	PLAYER1LO
11	POLARISING
12	GND
13	DISPENSE1
14	PLAYER2
15	DISPENSE2
16	PLAYER3
17	DISPENSE3
18	PLAYER4
19	DISPENSE4

RVCI custom connector pins and signals

The PLAYER1HI and PLAYER1LO outputs consist of a floating npn transistor with the collector and emitter made available at the connector. The output transistor is driven from a pnp buffer transistor, from VSUPPLY, through a series resistor.

The other player outputs each consists of an open collector transistor referenced to GND. The output transistors, defined as PLAYER 2-4,are pulsed active to indicate a game output.

Both the player lamp and the entry lamp consist of paralleled darlington transistors, referenced to GND. Their output is active low to illuminate the player lamp(s).

The coin meter output is a darlington transistor referenced to GND, and is pulsed low to increment the coin meter.

The four dispense inputs are CMOS inputs with input protection and pull-up resistor. They are active low to dispense credit.

The credit input is a CMOS input with input protection and pull-down resistor, which is active high to input credit.

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Power

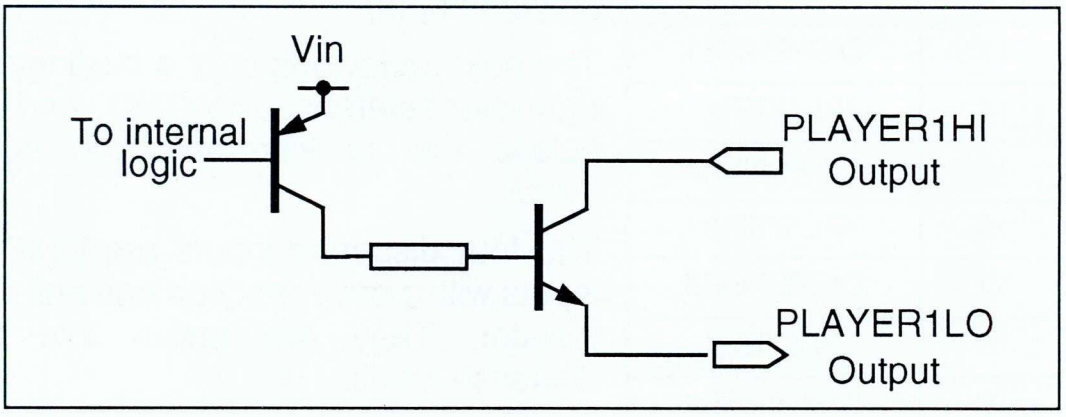
12V operation, VSUPPLY (pin 8) referenced to GND (pin12):

Input supply voltage	Vin	10V min.	15V max.
		(Abs. max. not operational 20V)	
Supply voltage ripple	Vrip	Within Vin min. to max. up to 100Hz 250mV pk-pk frequencies > 100Hz	
Supply rise time	Trise	75ms max.	
Input current.	Iin	500mA max. Creditor only	

Outputs

Player 1 output: (PLAYER1HI, PLAYER1LO) pins 9 and 10

Off state voltage	Vceoff	+30V max.	
Leakage current	Iin	5µA	
On state voltage	Vcesat	0.5V max.	
On state current	Ic	30mA max.	
Emitter voltage	Ve	0V min.	(Vin -2V) max.



Player 1 output equivalent circuit

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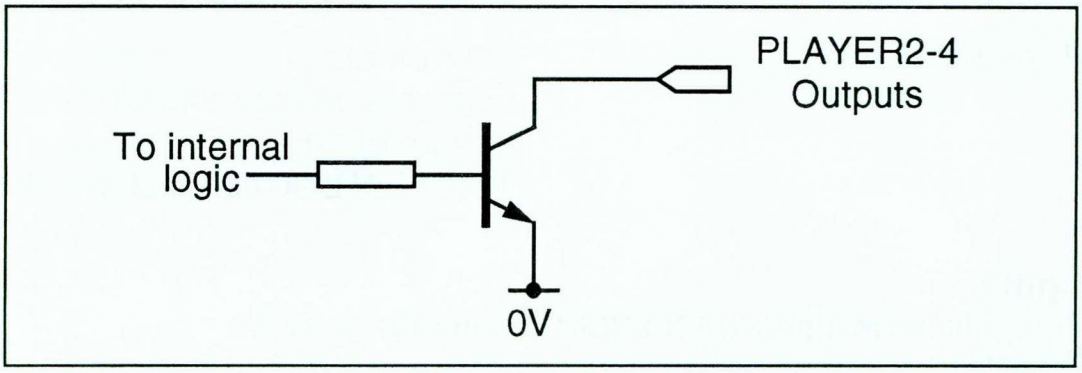
Player 2-4 outputs: (PLAYER2-4) pins14, 16 and 18

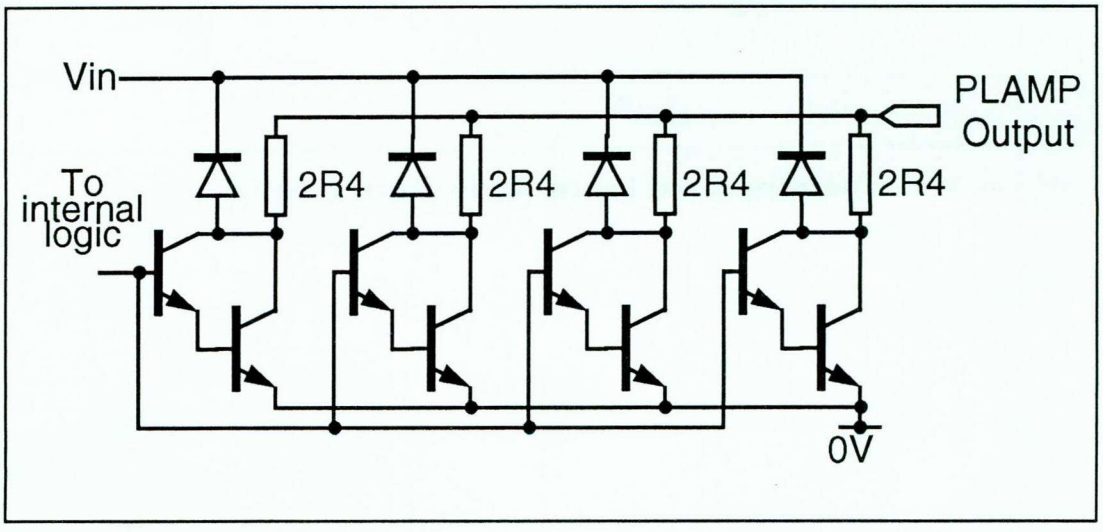
Off state voltage	Vceoff	+30V max.
Leakage current	Iin	5µA
On state voltage	Vcesat	0.5V max.
On state current	Ic	30mA max



Player 2-4 output equivalent circuit

Player lamp output: (PLAMP) pin 7

Off state voltage	Vceoff	Vin max.
Leakage current	Iin	100µA
On state voltage	Vcesat	1.5V max. (transistor only)
Maximum load	Ic	750mA max. Output is designed to sink current of up to 4 off 12V 2.2W bulbs connected in parallel, to Vin



Player lamp output equivalent circuit

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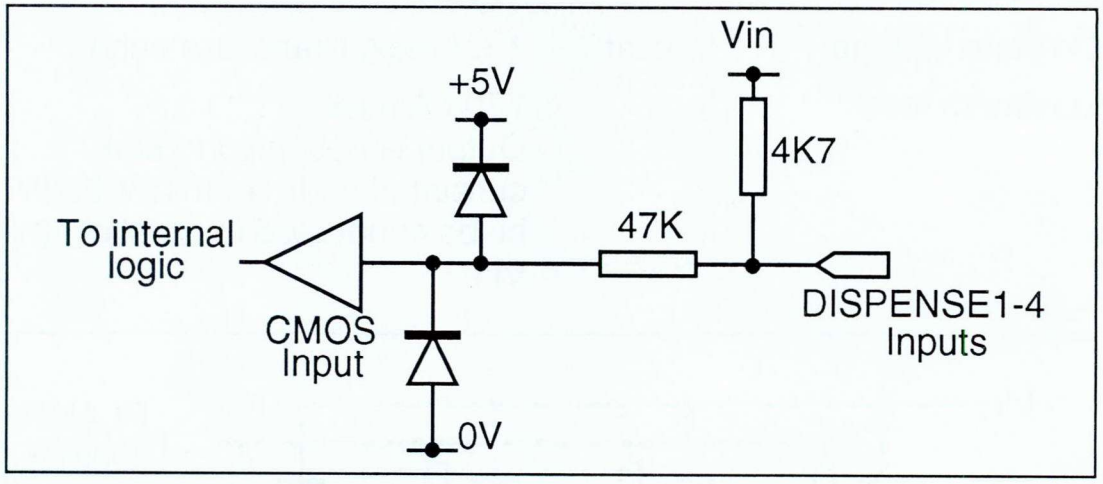
All other outputs: (SOL1, ELAMP/SOL2, CMETER) pins 1, 3 and 5

Off state voltage	Vceoff	Vin max.
Leakage current	Iin	100µA pins 3 and 5 3.2mA @ Vceoff = Vin max. pin 1 only
On state voltage	Vcesat	1.5V max. (transistor only)
Maximum load	Ic	500mA max. Output is designed to sink the current of one 12V 2.2W bulb connected to Vin

Inputs

Dispense inputs (DISPENSE1-4) pins 13, 15, 17, 19

Inactive	Vin	> +4 V (+30V max) or input open circuit
Active	Vin	between 0V and +1V
Input Impedance:	4k7Ω nom. to Vin	



Dispense 1-4 input equivalent circuit

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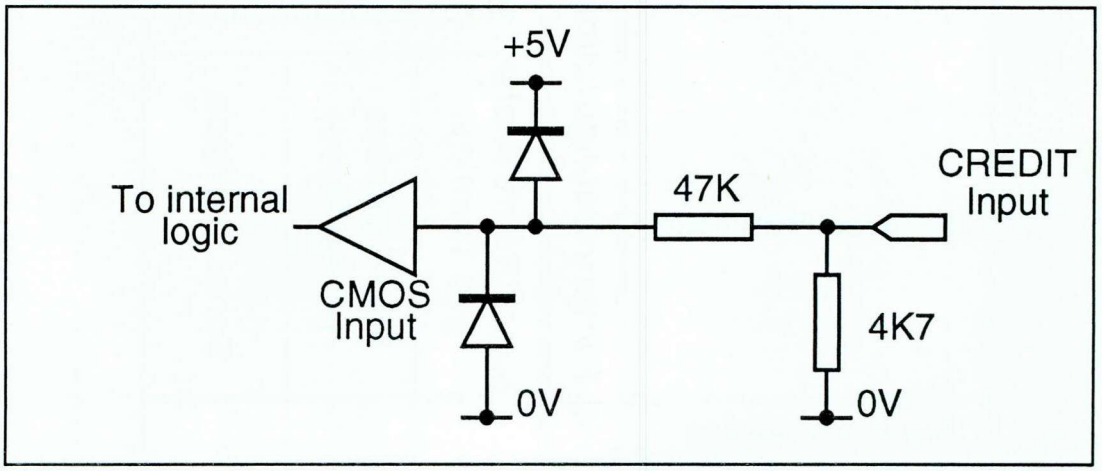
Credit input: (CREDIT) Pin 1

Active	Vin	> +4 V (+30V max)
Inactive	Vin	between 0V and +1V or input open circuit
Input Impedance:	4k7Ω nom. to +0V	



Credit input equivalent circuit

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CONFIGURATION

The configuration of the creditor can be divided into two areas; Factory Configuration and Field Configuration, these are defined in the following sections. The table below summarises which aspects are factory or field configurable.

Configuration item	Factory Configuration	Field Configuration		
		Mars® Route Alpha 250 Terminal	MMI Switches (when fitted)	Serial Interface
Coin Parameters	✓			
Coin Enable/Inhibit	✓	✓	✓	✓
Coin Values	✓	✓		✓
Game Price	✓	✓	✓	✓
Bonus Settings	✓	✓	✓	✓
Creditor Mode	✓	✓		✓
Test Credit	✓	✓	✓	✓

Coin parameters

Parameters are defined for each coin to determine the limits for the validation of a payment.

Coin enables/inhibits

Each of the coins may be individually enabled or inhibited. An enabled coin will be accepted unless it is inhibited by the interface processor.

Coin value

Each coin is allocated a value which may is used by the interface processor.

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Game price

The game price defines the credit level at which a game pulse is sent to the host machine.

Bonus settings

Up to two bonus levels can be defined at which a specified number of additional games are given.

Credit Dispense mode

A single player creditor can be configured to automatically dispense games once a game price has been reached, or to wait for a dispense credit input before dispensing a game pulse.

Test credit

In the test credit mode the creditor will dispense a game pulse each time the reject lever is actuated (within a 10 second time-out period).

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FACTORY CONFIGURATION

The CashFlow® 340 creditor is configured for:

- Single Player
- Multiple Players (4 maximum)

Specific Coinsets

The acceptor is pre-programmed to accept a specific range of coins and/or tokens from the following countries.

This list does not preclude any other coinsets not specifically listed.

Australia	Hungary	Singapore
Austria	India	South Africa
Bahrain	Israel	South Korea
Belgium	Italy	Spain
Canada	Japan	Sweden
Colombia	Kuwait	Switzerland
Cyprus	Malta	Taiwan
Denmark	Mexico	Turkey
Eire	Netherlands	UAE
Finland	New Zealand	UK
France	Norway	USA
Germany	Portugal	
Greece	Saudi Arabia	

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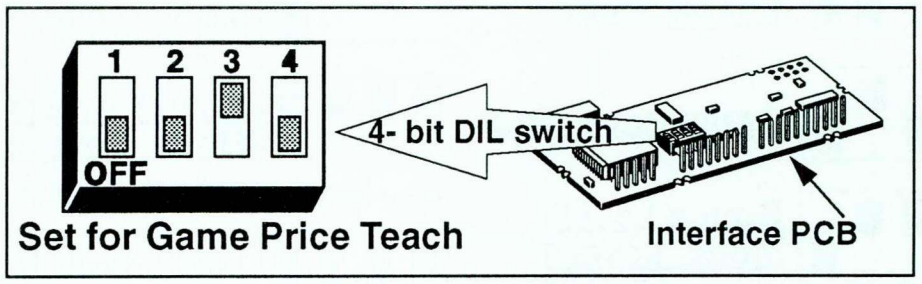
FIELD CONFIGURATION

The CashFlow® 340 creditor product offers various field configuration options. There are two methods available; via an interface PCB (MMI) or a Mars® Route Alpha 250 hand held terminal.

VIA MAN MACHINE INTERFACE (MMI)

The Man Machine Interface is designed to provide a simple stand-alone interface which allows frequently used functions to be accessed and varied by an operator or route person without the use of a Mars® Route Alpha 250 terminal. The interface consists of a 4-bit DIL switch on the Machine Interface PCB. The following functions are available:

- Inhibit a specific Coin
- Enable a specific Coin
- Set a Game Price
- Set a Bonus level
- Set a Bonus Award level
- Enter Test Credit mode



To change the function of the product there is a sequence of events that must be followed **in order**:

1 Switch off power and remove the acceptor module from the machine.

2 Dis-connect the loom(s).

3 Remove the interface PCB cover by pressing downwards in the direction of the arrow on the cover.

4 Re-connect the loom(s).

5 Switch on power to the acceptor module.

6 Adjust the switch positions on the 4-bit DIL switch.

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7 Replace the acceptor module back into machine.

8 Press the reject lever within a 20 second time-out period.

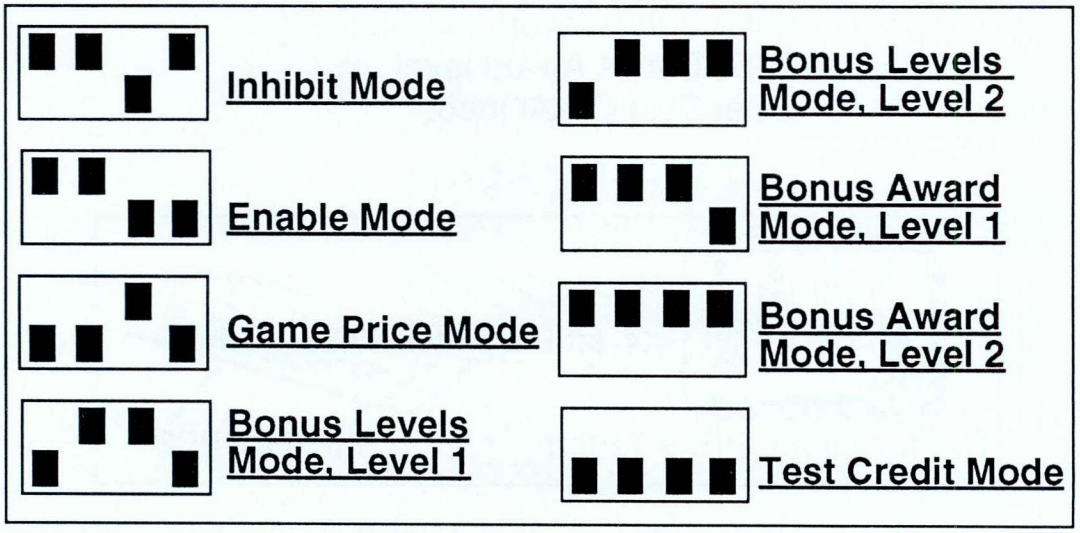
9 Insert coins until desired function has been achieved.

10 Press the reject lever.

Important points to remember

- The acceptor module must be powered up before changing the switch positions.
- The reject lever must be pressed within the 20 second timeout period to return to the normal operational mode.

Care should be taken while the creditor is not mounted in the machine.



Switch positions for MMI modes

To set Inhibit Specific Coins mode

1 Adjust slide switches to: 1=ON, 2=ON, 3=OFF, 4=ON.

2 Press the reject lever.

3 Insert specific coins to be inhibited and check that they are accepted.

4 Press the reject lever to return to operational mode.

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To set Enable Specific Coins mode

1 Adjust slide switches to: 1=ON, 2=ON, 3=OFF, 4=OFF.

2 Press the reject lever.

3 Insert specific coins to be enabled and check that they are accepted.

4 Press the reject lever to return to operational mode.

To set Game Price mode

1 Adjust slide switches to: 1=OFF, 2=OFF, 3=ON, 4=OFF.

2 Press the reject lever.

3 Insert coins to the value of the game and check that they are accepted.

4 The display (if fitted) will show the game price.

5 Press the reject lever to return to operational mode.

To set Bonus Levels mode, level 1

1 Adjust slide switches to: 1=OFF, 2=ON, 3=ON, 4=OFF.

2 Press the reject lever.

3 Insert coins to the value of the required bonus level and check that they are accepted.

4 The display (if fitted) will show the bonus price, level 1.

5 Press the reject lever to return to operational mode.

To set Bonus Levels mode, level 2

1 Adjust slide switches to: 1=OFF, 2=ON, 3=ON, 4=ON.

2 Press the reject lever.

3 Insert coins to the value of the required bonus level and check that they are accepted.

4 The display (if fitted) will show the bonus price, level 2.

5 Press the reject lever to return to operational mode.

To set Bonus Award mode, level 1

1 Adjust slide switches to: 1=ON, 2=ON, 3=ON, 4=OFF.

2 Press the reject lever.

3 Insert coins equal to number of bonus awards required and check that they are accepted.

4 The display (if fitted) will show number of bonus awards.

5 Press the reject lever to return to operational mode.

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To set Bonus Award mode, level 2

1 Adjust slide switches to: 1=ON, 2=ON, 3=ON, 4=ON.

2 Press the reject lever.

3 Insert a number of coins to the value of the required bonus level.

4 The display (if fitted) will show the bonus price, level 1.

5 Press the reject lever to return to operational mode.

To enter Test Credit mode

1 Adjust slide switches to: 1=OFF, 2=OFF, 3=OFF, 4=OFF.

2 Press the reject lever.

3 If credit dispense mode is enabled then the test credits will be accunulated by the creditor each time the reject lever is pressed. The display will show the number of games in credit.

If not in credit dispense mode then the teset credits will be issued to the host machine each time the reject lever is pressed. The display will show 0000.

4 The display (if fitted, and the creditor in manual dispense mode) will show the number of games in credit.

5 Allow full time-out to occur for return to operational mode.

When you have completed configuring the acceptor module the interface PCB cover needs to be replaced. To do this follow the instructions below:

1 Switch off power and remove the acceptor module from the machine.

2 Dis-connect the loom(s). When dis-connecting hold down the interface PCB before pulling on the loom.

3 Replace the interface PCB cover.

4 Re-connect the loom(s).

5 Place the acceptor module back into the machine.

6 Switch on power.

7 Test the unit to ensure it is working correctly.

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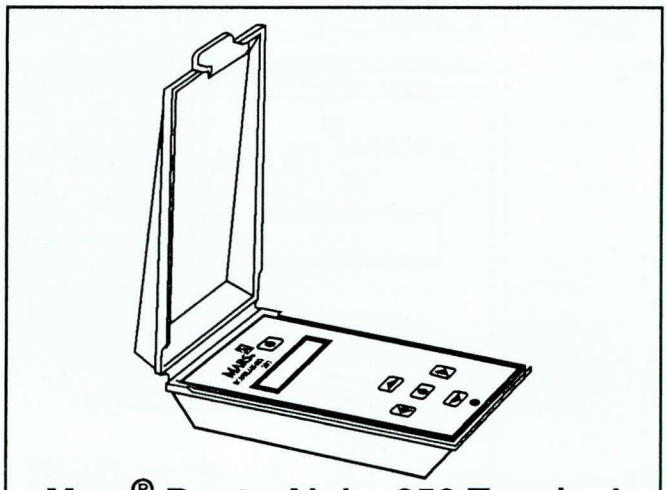
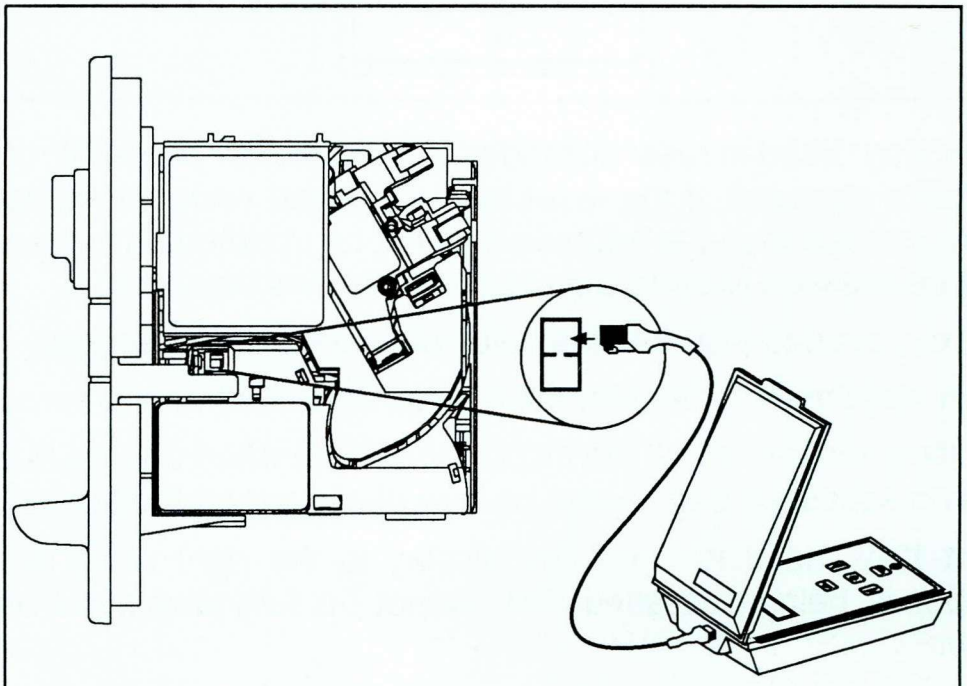
VIA MARS® ROUTE ALPHA 250 TERMINAL



Mars® Route Alpha 250 Terminal



CashFlow® 340 creditor connections to Terminal

The Mars® Route Alpha 250 terminal is used to check or change certain data which affects the way the creditor operates. The data is held in addresses. Each address has a unique number which identifies the feature you wish to read or change.

The following pages will explain how to access and change the data in certain addresses. At the end of this section there is a list of addresses and the relevant values.

The terminal is connected to the CashFlow® 340 creditor via a six way terminal connector at the front of the acceptor module.

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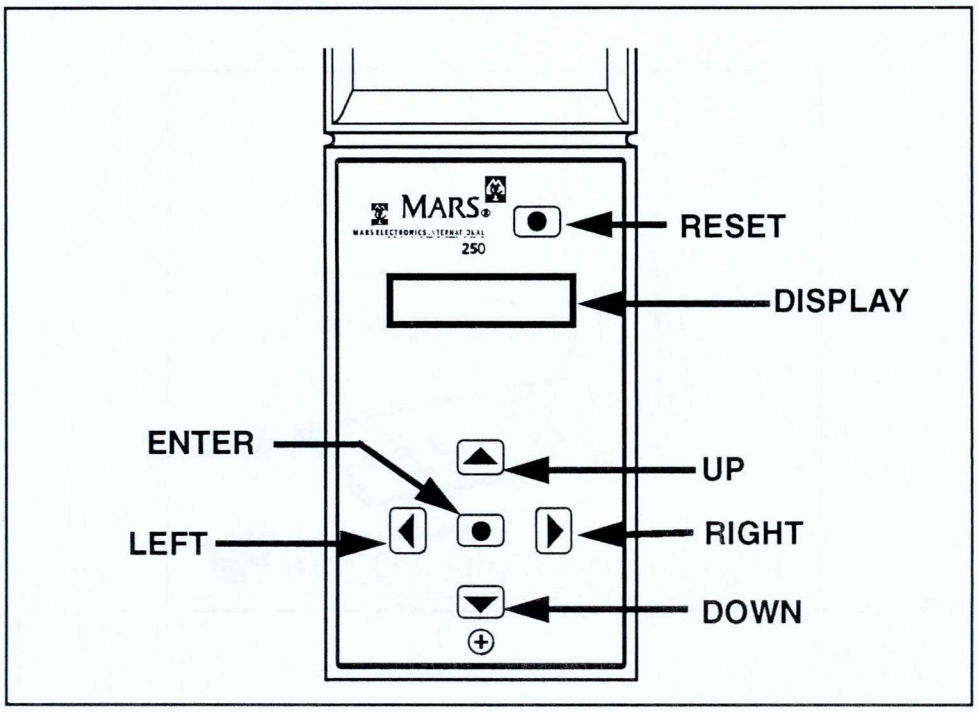
Key Functions



Reset Key: used to reset all modes and to initialise any settings that you have changed. If the reset key is pressed while an address is being updated then the address may not be updated. The reset key must be pressed to store the changes that you have made.

Up Key: used to increase the value displayed on the screen.

Down Key: used to decrease the value displayed on the screen.

Left Key: used to scroll the display to the left when a large number is being accessed that cannot be fully displayed on the screen.

Right Key: used to scroll the display to the right when a large number is being accessed that cannot be fully displayed on the screen.

Enter Key: used to change between the address and data displays.

Other Facilities Of The Terminal

The terminal has built-in features to speed up its use, including the ability to scan at a higher speed with the keys auto repeating, to automatically roll over from its highest to lowest address and to inform the operator should a communication error occur.

Auto Repeating Keys

If either the UP or DOWN keys are kept pressed they automatically repeat. The repeat speed of the key increases the longer the key is held down.

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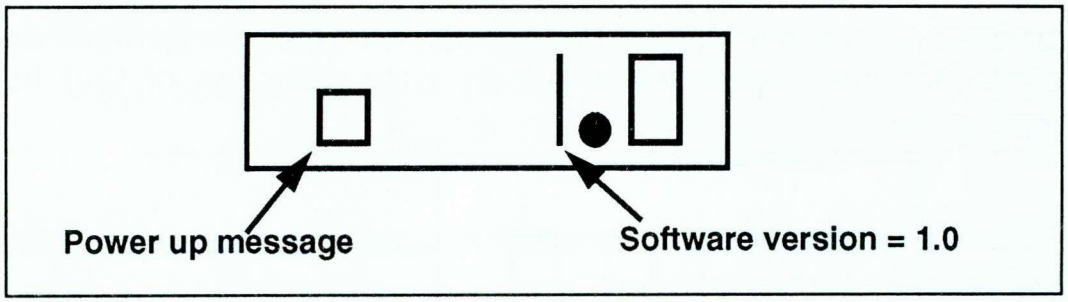
Double Click Hotkeying

If a key is doubled clicked (pressed twice in quick succession) then this causes the address number to increment by a larger amount. e.g. if the user starts at address number 1 then double clicks the UP key, the address will jump to 40, double click again the address will jump to address 100 etc. You can also double click the DOWN key to decrement by larger amounts.

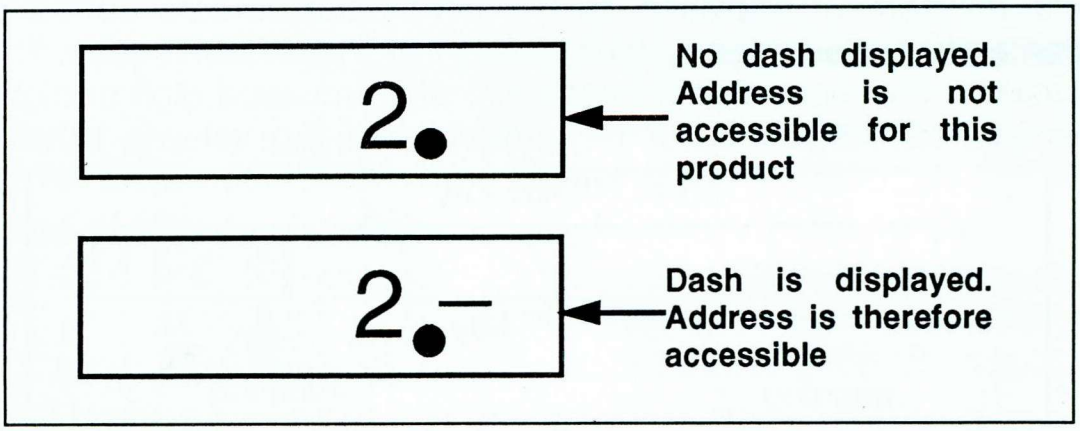
Using The Terminal

As soon as the terminal is connected to a creditor it powers up and interrogates the product.

The terminal display will clear and briefly show a message that indicates the version of software in the terminal. A display of [0 1.0] means software with a version number of 1.0 is fitted in the terminal.



After a few seconds the display will show the number [1.] or [1.-]. Not all configuration items are applicable to every product but all the address values are shown on the display. If the value for the address is applicable to the product a dash will be present at the far right position on the display. The value can then be accessed and changed if required



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The basic operation to alter the information held in an address is:

1 Connect the terminal to the CashFlow® acceptor module.

2 Wait for the terminal to power up correctly.

3 Select the address by using the UP and DOWN keys.

4 Examine the data by pressing the ENTER key.

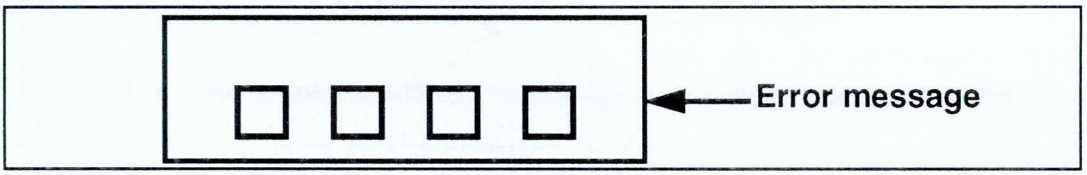
5 Alter the data value by pressing the UP or DOWN keys until the new value has been reached.

6 Press the ENTER key to return to displaying addresses.

7 Press the RESET key to initialise the new value.

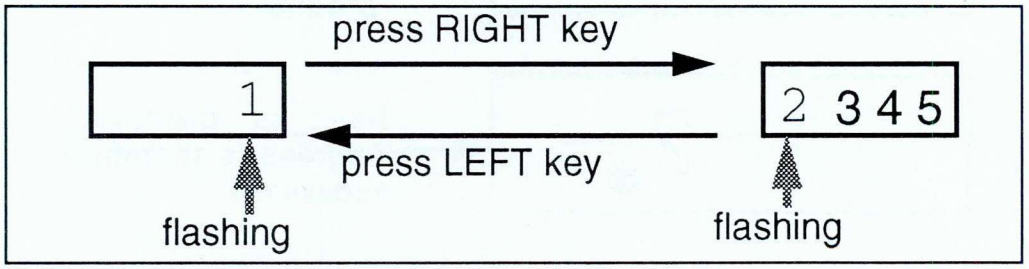
When the terminal is displaying values stored at addresses, no decimal point will be displayed.

If an error occurs with the communication between the terminal and the creditor the display will show an error message of four half height zeroes.



This message will stay on the display. Pressing the RESET key may clear the fault. The display will then revert to showing the current address. If the error occurred while updating an address then the value of that address should be checked as it may not have been updated correctly. If, after pressing the RESET key, the fault remains the error message will stay and you need to return the terminal for repair.

As the screen is capable of only displaying four digits at any one time the number displayed on the screen can be scrolled if it is greater than 9999 by using the Left Key LEFT and RIGHT keys. The outside left or right digit will flash indicating an extra digit or digits can be examined by use of the scrolling keys. E.g. value is 12345



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The tables below show you how the addresses for the creditor can be reconfigured and their possible values.

Address	Parameter	Range	Meaning
1	Coin 1 inhibit	0-1	0 = coin allowed,1 = inhibited
2	Coin 2 inhibit	0-1	0 = coin allowed,1 = inhibited
3	Coin 3 inhibit	0-1	0 = coin allowed,1 = inhibited
4	Coin 4 inhibit	0-1	0 = coin allowed,1 = inhibited
5	Coin 5 inhibit	0-1	0 = coin allowed,1 = inhibited
6	Coin 6 inhibit	0-1	0 = coin allowed,1 = inhibited
7	Coin 7 inhibit	0-1	0 = coin allowed,1 = inhibited
8	Coin 8 inhibit	0-1	0 = coin allowed,1 = inhibited
9	Coin 9 inhibit	0-1	0 = coin allowed,1 = inhibited
10	Coin 10 inhibit	0-1	0 = coin allowed,1 = inhibited
11	Coin 11 inhibit	0-1	0 = coin allowed,1 = inhibited
12	Coin 12 inhibit	0-1	0 = coin allowed,1 = inhibited
15	Accept direction	0-1	0 = left,1 = right
16	Strobes	0-15	Value = sum of codes 1 = direction strobe left 2 = direction strobe right 4 = post gate left, 8 = post gate right
21	Coin 1 type	0-2	0 = coin 1 = value token 2 = vend token
22	Coin 2 type	0-2	0 = coin 1 = value token 2 = vend token
23	Coin 3 type	0-2	0 = coin 1 = value token 2 = vend token
24	Coin 4 type	0-2	0 = coin 1 = value token 2 = vend token

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Address	Parameter	Range	Meaning
25	Coin 5 type	0-2	0 = coin 1 = value token 2 = vend token
26	Coin 6 type	0-2	0 = coin 1 = value token 2 = vend token
27	Coin 7 type	0-2	0 = coin 1 = value token 2 = vend token
28	Coin 8 type	0-2	0 = coin 1 = value token 2 = vend token
29	Coin 9 type	0-2	0 = coin 1 = value token 2 = vend token
30	Coin 10 type	0-2	0 = coin 1 = value token 2 = vend token
30	Coin 11 type	0-2	0 = coin 1 = value token 2 = vend token
30	Coin 12 type	0-2	0 = coin 1 = value token 2 = vend token
41	Price	0-65,535	Required credit for game output
43	Display mode	0-3	0 = incrementing credit 1 = decrementing credit 2 = number of games 3 = number of games and Decrementing credit
44	Display shift	0-2	0 = nil shift 1 = shift to right by one move 2 = shift to right by two moves

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Address	Parameter	Range	Meaning
45	Decimal point position	0-4	0 = retain point at right side 1 = move point to left once 2 = move point to left twice 3 = move point left three times 4 = no decimal point
60	Bonus credit mode	0-1	0 = dis-able 1 = enable
61	Coin meter output enable	0-1	0 = dis-able 1 = enable
62	Auxiliary credit input enable	0-1	0 = dis-able 1 = enable
63	Credit dispense mode	0-1	0 = dis-able 1 = enable
64	Test credit mode enable	0-1	0 = dis-able 1 = enable
65	Separator drive enable	0-1	0 = dis-able 1 = enable
66	Game pulse width	0-5	0 = 75ms ON 75ms OFF 1 = 75ms ON 200ms OFF 2 = 100ms ON 200ms OFF 3 = 100ms ON 330ms OFF 4 = 150ms ON 330ms OFF 5 = 330ms ON 330ms OFF
67	Coin meter pulse width	0-3	0 = 50ms ON 50ms OFF 1 = 100ms ON 100ms OFF 2 = 150ms ON 150ms OFF 3 = 200ms ON 200ms OFF
68	Bonus time width	0-15	Time in steps of 2.5secs.
69	Auxiliary credit input units	0- 255	Value divided by payment scaling factor
70	Trigger level 1 award	0-127	Games awarded at trigger level 1
71	Trigger level 1	0-65,535	Credit trigger level 1

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Address	Parameter	Range	Meaning
72	Trigger level 2 award	0-127	Games awarded at trigger level 2
73	Trigger level 2	0-65,535	Credit trigger level 2
74	Maximum game limit	0-127	Maximum number of games limit
75	Coin meter value scalar	0-255	Number of pulses = credit/ coin meter scalar
80	Payment scaling factor	0-255	Scalar applied to coin/auxiliary value
81	Value of coin 1	0-255	Real coin value divided by payment scaling factor
82	Value of coin 2	0-255	Real coin value divided by payment scaling factor
83	Value of coin 3	0-255	Real coin value divided by payment scaling factor
84	Value of coin 4	0-255	Real coin value divided by payment scaling factor
85	Value of coin 5	0-255	Real coin value divided by payment scaling factor
86	Value of coin 6	0-255	Real coin value divided by payment scaling factor
87	Value of coin 7	0-255	Real coin value divided by payment scaling factor
88	Value of coin 8	0-255	Real coin value divided by payment scaling factor
89	Value of coin 9	0-255	Real coin value divided by payment scaling factor
90	Value of coin 10	0-255	Real coin value divided by payment scaling factor
91	Value of coin 11	0-255	Real coin value divided by payment scaling factor
92	Value of coin 12	0-255	Real coin value divided by payment scaling factor

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ENVIRONMENTAL PERFORMANCE

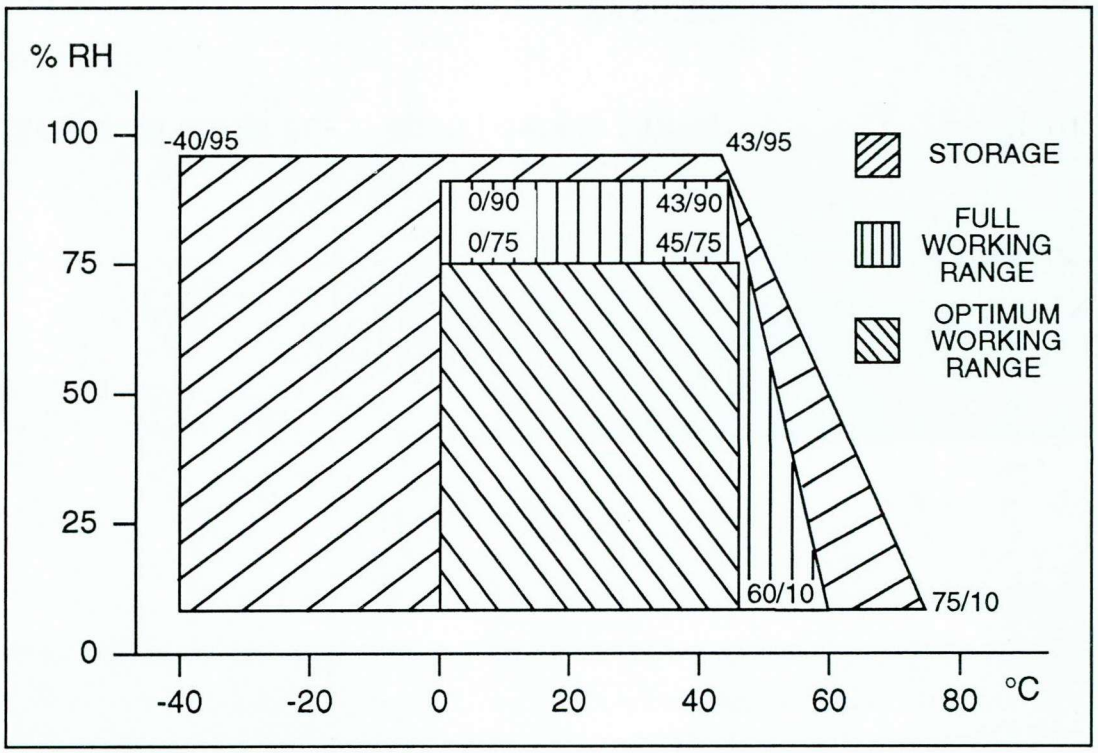
Products will meet the following environmental specification:

TEMPERATURE RANGE

Working ambient	0° to 60°C
Max rate of change	15°C/hr. non condensing
Storage	-40° to +75°C
Recovery	1 hour per 10°C to working ambient temperature range
Solar radiation	Max. working ambient applies

HUMIDITY

Operational	10% to 90% RH
Storage	10% to 95% RH
Recovery	1 hour per 10% RH to working ambient humidity range



Temperature / Humidity specification

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VIBRATION

Operational - units will not be damaged by these conditions:

Vibration (Coin acceptance **will not** be seriously affected.)	0.25g at 5 to 500 Hz. Intermittent over the unit's life. Refer to BS2011: part 2.1 Fc:1983 / IEC 68-2-6

TRANSPORTATION

Units in the packed state will not sustain any physical damage under these conditions:

Shock	Half sine, 30g shock, 18ms dur. Refer to BS 2011: part 2.1 Ea: 1988 / IEC 68-2-27
Bump	1000 bumps 6ms duration at 25g. Refer to BS 2011: part 2.1 Eb: 198 7/ IEC 68-2-29
Free Fall	1000mm fall onto packing faces. Refer to BS 2011: part 2.I Ed: 1992 / IEC 68-2-32:1975
Crush	Neatly stacked units of the same type may be stacked to a height of 2 metres.

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LIQUIDS

Water

The units inclusive of PCBs will be splash protected.

The coin entry encourages excess water towards the reject path on an accept right product, and the front of the product out of the coin path. Coin stall under these conditions will be minimised.

Salt water

Prolonged exposure in a salt laden atmosphere will lead to PCB corrosion damage. Suitable packaging will be required when shipped by sea.

Other Liquids

Exposure to these will cause impairment of function. To include: dilute carbonic acid, dilute citric acid, carbonated drinks, beer, tea, coffee, chocolate, soup, syrup and sugar residue, uric acid.

Comments:

- Certain beverages and the dilute acids may cause similar effects to salt water if they contact the PCB's.
- Performance when wet will be similar to that described for water.
- Liquids which leave a residue on drying which affects the passage of coins will cause malfunction.

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ELECTRO MAGNETIC COMPATIBILITY (EMC)

CONDUCTED EMISSIONS

Creditor products will produce levels of conducted emissions that are less than the following:

Frequency	Limits dB ref. 1μV
10 KHz - 150 KHz	79 - 57.5
150 KHz - 190.8 KHz	54
190.8 KHz - 500 KHz	54 -46
500 KHz - 5 MHz	46
5 MHz - 30 MHz	48

Limits for conducted emissions

RADIATED EMISSIONS

The creditor products will produce levels of radiated emissions that are less than the following, according to VDE, CISPR, CENELEC and FCC test methods:

Frequency	Limits		
	3m dB re 1μV/m	10m dB re 1μV/m	30m dB re 1μV/m
10 kHz-30 MHz	54	44	34
30-230 MHz	40	30	20
230-470 MHz	44	34	24
470-1000 MHz	46	36	26

Limits for radiated emissions

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SUSCEPTIBILITY

Satisfactory performance of the creditor products under EMC attack is defined by two performance criteria;

Performance Criteria A

No user noticeable loss of function or performance permitted, i.e.:

- No loss of data integrity.
- No functional mis-validation of currency or credit values.
- No mis-routing of coins.
- The unit will not be damaged and will continue to function correctly after the disturbance without any external reset being necessary.
- No resultant safety hazard.

Performance Criteria B

No user permanent loss of function will occur, however degradation of performance may occur during EMC attack.

- Reduced coin acceptance, mis-validation or mis-routing may occur to coins passing through the selector at the exact instant of EMC attack.
- The unit will not be damaged and will continue to function correctly after the disturbance without any external reset being necessary.
- No resultant safety hazard.
- Displays may indicate incorrect data but will revert to correct data after attack.
- Increased time may be required for datalink handshakes.

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Immunity to Radiated Electromagnetic Energy

Tested in accordance to IEC 801-3. 1984 Performance Criteria A can be expected at 3 V/m (RMS unmodulated) 27 MHz to 500MHz

Immunity to Electrostatic Discharge

Tested in accordance with IEC 801-2:1984 level 2 (4kV). Performance Criteria B can be expected to display;

- Contact - spike with exponential decay
- Routeman point of contact only, including accessible metal parts.

Tested in accordance with IEC 801-2:1984 level3 (8kV). Performance Criteria B can be expected to display;

- Air discharge - spike with exponential decay
- Routeman point of contact only, including accessible metal parts.

Immunity to Conducted Fast Transients

Conformance to IEC 801-4: 1988 - Performance Criteria B

- ± 0.5kV open circuit (for power supply lines)
- ± 0.5kV open circuit (for signal / data / control lines)
- Risetime 5nS
- Pulse duration 50 nS
- Repetition frequency 5kHz
- 50Ω source impedance

Immunity to Transients

Conformance to IEC 65A/77B (Sec) 120/87-Performance Criteria B.

- Open circuit : rise time 1.2µS.
- Open circuit: pulse duration 50µS.
- Short circuit: rise time 8.0µS.
- Short circuit: pulse duration 20µS.
- Open circuit common mode: ± 0.5kV (wrt earth).
- Open circuit differential mode: ± 0.5kV.

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SUBMISSIONS & SAFETY

CLASSIFICATION

The defined creditor products will satisfy the requirements of a class II (un-earthed) appliance as defined in IEC 335.

The creditor products will comply with:

- UL 756 "Coin and currency changers and actuators"
- IEC 335, 3rd Edition "Safety of Household and similar Electrical Appliances"

FLAMMABILITY

All major plastic parts will be moulded in materials with a flammability rating of UL 94 V-2/IEC 707 FV2 or better. Some small parts are moulded in materials with a minimum flammability rating of 94 -HB/IEC 707 FH2.

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POWER SUPPLY INPUT PROTECTION

Overcurrent protection is not included in the creditor and should be provided as part of the host machine.

Recommended fuse ratings are:

- 12V: 2.0A

Other protection methods may be used providing the overall protection envelope remains within that defined by the fuse characteristics.

MECHANICAL PARTS

The CashFlow® products will not contain mechanically moving parts, or sharp edges, which can present a hazard in normal use.

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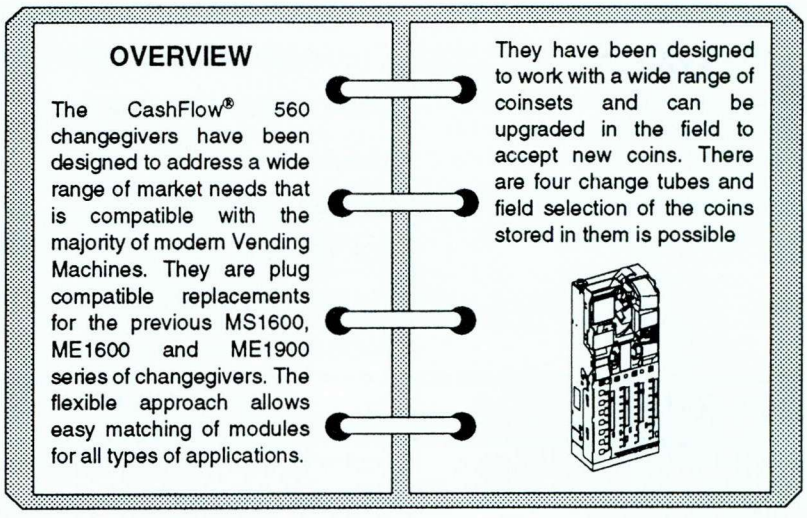
MEI BINDER

Did you know that you can protect your documentation with an MEI binder. This binder has been specifically designed to hold your A4 documentation. It has four rings and is manufactured from top quality materials. It is finished in a stylish black hessian weave with dark grey suede lining and protective metal corners. Your MEI binder will hold several CashFlow® books if required. It comes supplied with a set of ten colour coded section dividers.

The binder also includes;

- pen loop
- business card pocket



To order your CashFlow® Binder contact your MEI Distributor or MEI Regional Office **TODAY.**

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FACSIMILIE: 215-4302694

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APPENDIX

INTERFACE DRAWINGS

The following mechanical interface drawings are included in this section.

	Drawing Number
4" ACCEPTOR/CREDITOR	000491002
MINI FRONT PLATE	149278001
MIDI FRONT PLATE	149281001
MAXI FRONT PLATE	149265001

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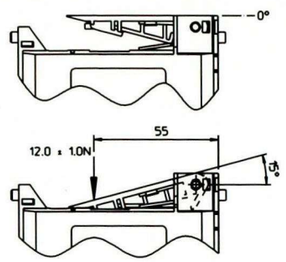
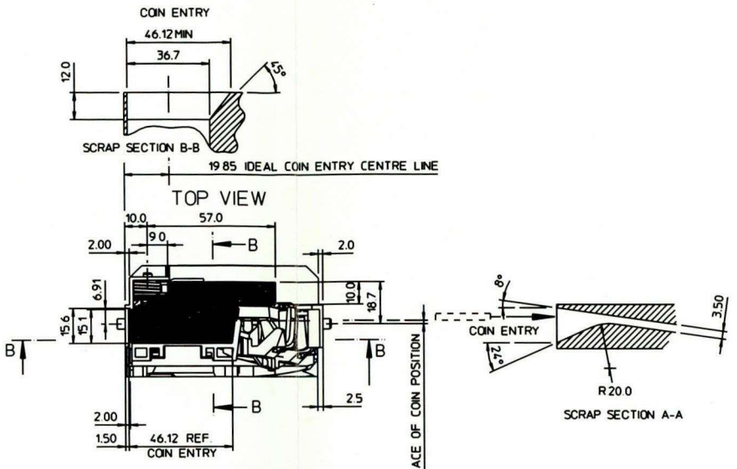
A0 PART NO. 30103 000491002

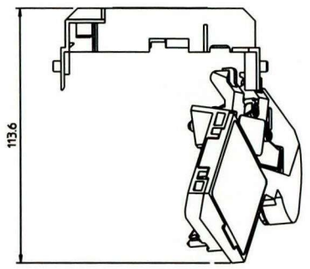
WAS PART NUMBER -

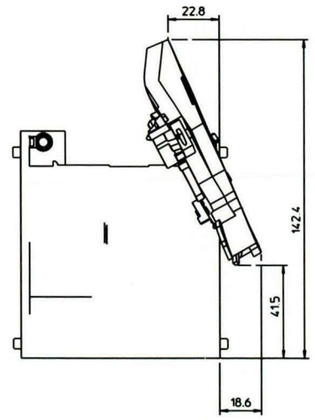
DATE	DRN	ALTERATION	REV	ENG	MOD
06/05/92	PRE	INITIAL RELEASE	R3		15619
21/08/92	MCC	VIEW AT L15 MODIFIED AS FOLLOWS - Ø2 ADDED TO DIM 34.5 AT K15, DIM 37.5±0.2 ADDED AT K16, DIM AT L13 WAS 5.9±0.5 NOW 5.9±0.2, DIM AT M12 WAS 4.0 NOW 4.15±0.2, DIM AT M14 WAS 35.03 NOW 35.0±0.3, DIM AT M15 WAS 44.5 NOW 44.25±0.3, DIM AT M16 WAS 3.10 NOW 3.2±0.3, DIM AT M17 WAS 9.0±0.4/-0.3 NOW 8.69/9.40 VIEW AT M15 MODIFIED AS FOLLOWS DIM AT M13 WAS 8.0 NOW 8.15±0.2, 7.1 DIM AT M13 DELETED AND REPLACED WITH 5.9±0.2, DIM AT O14 WAS 38.0 NOW 38.0±0.2, DIM AT O15 WAS 34.5 NOW 34.5±0.2 DIM AT O15 WAS 4.0 NOW 3.75±0.2, DIM AT M16 WAS 3.10 NOW 3.2±0.3, DIM AT M17 WAS 5.0±0.5 NOW 4.72/5.71, DIM AT M15 WAS 44.50 NOW 44.25±0.3	R4		

REJECT LEVER MOVEMENT



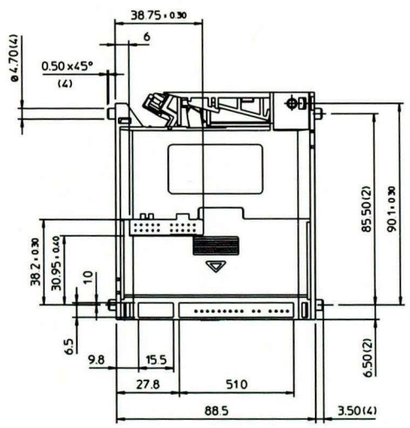




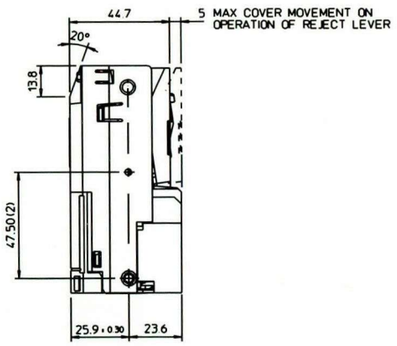


LID OPEN FOR CLEANING

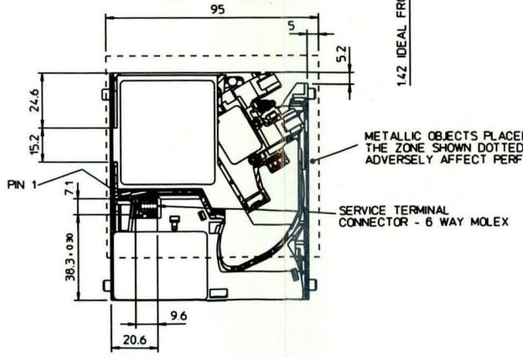
BACK VIEW



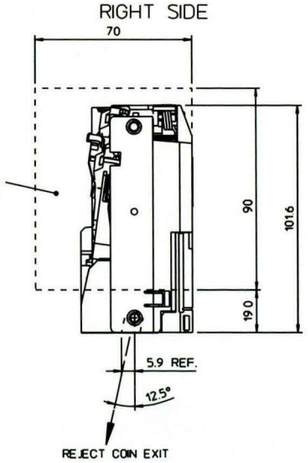
LEFT SIDE

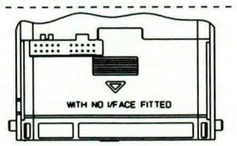


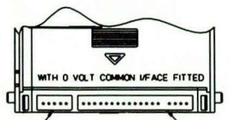
FRONT VIEW

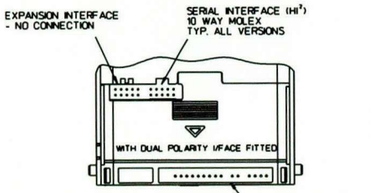


RIGHT SIDE

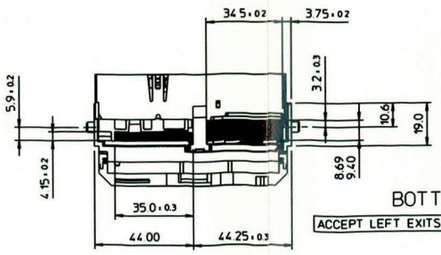




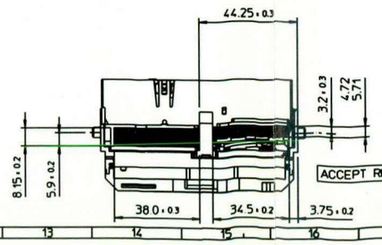




NOTE :-
ALL CONNECTOR PINS ARE 0.635 SQUARE AND ARE ON A 2.54 PITCH



BOTTOM VIEW
ACCEPT LEFT EXITS DOWN OPTION



BOTTOM VIEW
ACCEPT RIGHT EXITS DOWN OPTION

PARTS MAY VARY IN DETAIL FROM THOSE SUPPLIED BUT WILL NOT EXCEED THE SPACE ENVELOPE

NOTE :-
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UNLESS OTHERWISE STATED
DIMENSIONS ARE IN MM — 0 DECIMAL PLACES ±.05
ANGULAR TOLERANCE ±1° — 1 DECIMAL PLACE ±.02
2 DECIMAL PLACES ±.01

THIRD ANGLE PROJECTION | DO NOT SCALE

MATERIAL SPEC. | APPD.

ORIGINALLY DRAWN BY PRE

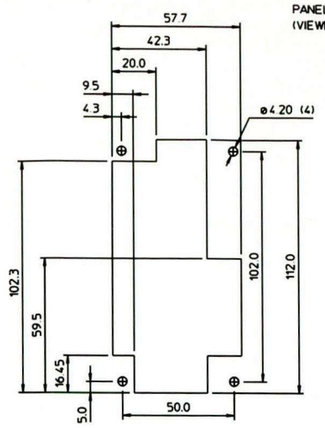
SCALE 1:1 | PRODUCT | SHEET 1 OF 1

TITLE: CASHFLOW 330 ACCEPTOR INTERFACE DETAILS

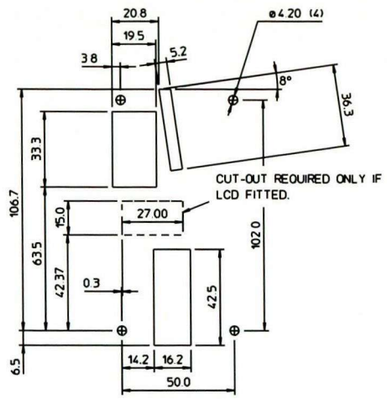
SITE/GROUP	PART NO	REV	CLASS
30103	000491002	R4	ID

A0 PART NO. 30103 149278001

PANEL CUT-OUT DETAILS
(VIEWED FROM FRONT)

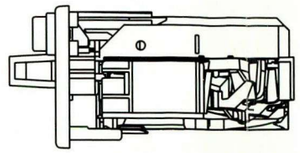


MINIMUM SUGGESTED PANEL CUT-OUT
FOR FRONT MOUNTING.

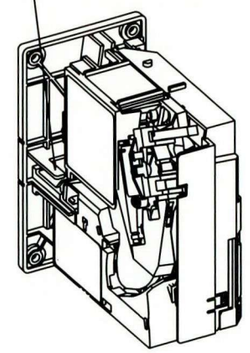


MINIMUM SUGGESTED PANEL CUT-OUT
FOR REAR MOUNTING.

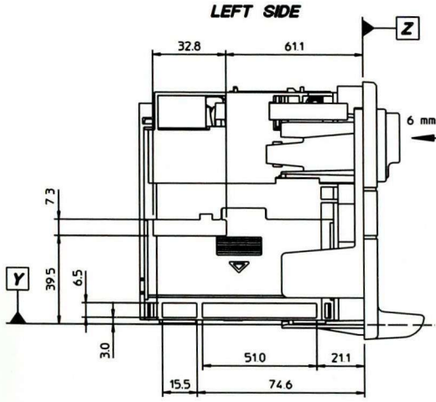
TOP VIEW



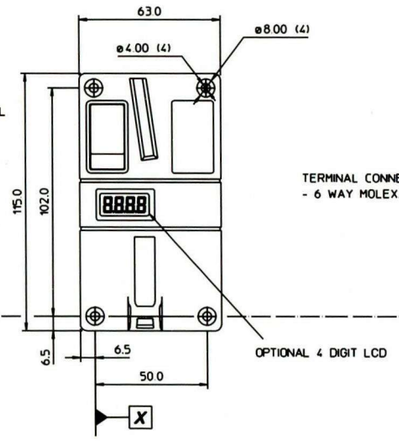
PRESS DOWN TO OPEN LID

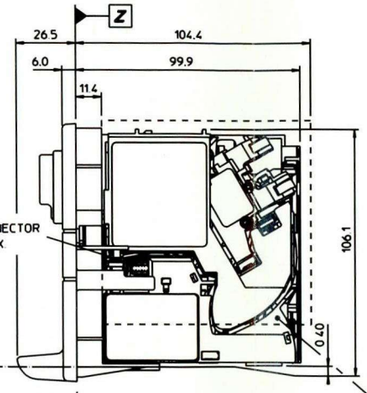


LEFT SIDE



FRONT VIEW

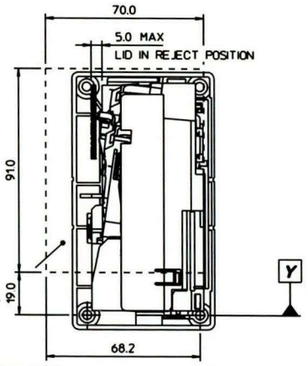


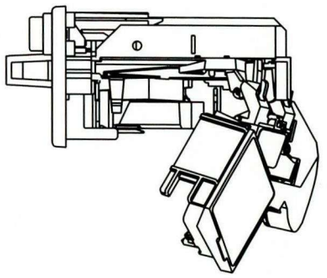


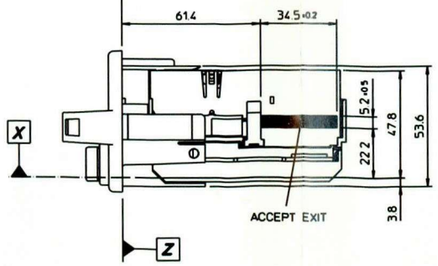
RIGHT SIDE

METALLIC OBJECTS PLACED WITHIN ZONE
SHOWN DOTTED MAY ADVERSELY AFFECT
PERFORMANCE.

BACK VIEW



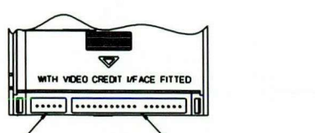


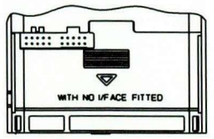


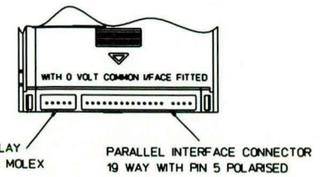
BOTTOM VIEW

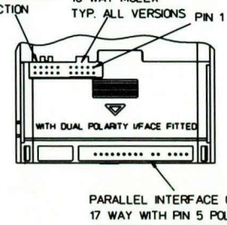
VIEWS SHOWING CONNECTOR VARIATIONS.
FRONTPLATE OMITTED FOR CLARITY.

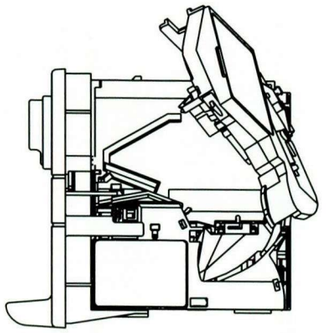
NOTE: ALL CONNECTOR PINS ARE 0.635 SQUARE
AND ARE ON A 2.54 PITCH











LID OPEN FOR CLEANING

MAS PART NUMBER -					
DATE	DRN	ALTERATION	REV	ENG	MOD
01/06/92	MJB	INITIAL ISSUE	R1		1594
01/09/92	MJB		R2		

PROVISIONAL
SUBJECT TO CHANGE

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ANGULAR TOLERANCE ±1° | 1 DECIMAL PLACE ±0.2
2 DECIMAL PLACES ±0.1

THIRD ANGLE PROJECTION | DO NOT SCALE

MATERIAL SPEC. | APPD.

ORIGINALLY DRAWN BY MJB

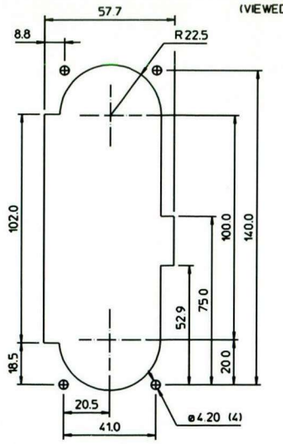
SCALE 1:1 | PRODUCT TITAN | SHEET 1 OF 1

TITLE INTERFACE DRAWING
MINI - FRONTPLATE

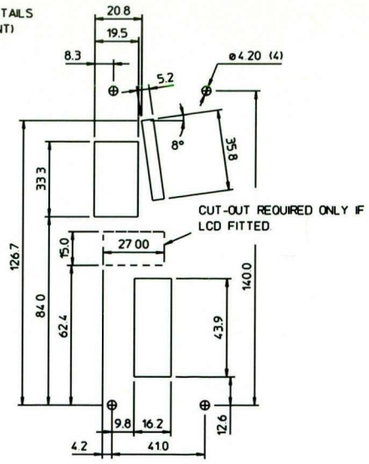
SITE/GROUP	PART NO	REV	CLASS
30103	149278001	R2	ID

A0 PART NO. 30103 149281001

PANEL CUT-OUT DETAILS
(VIEWED FROM FRONT)

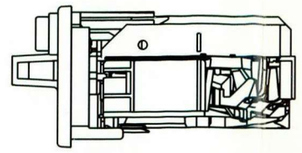


MINIMUM SUGGESTED PANEL CUT-OUT
FOR FRONT MOUNTING

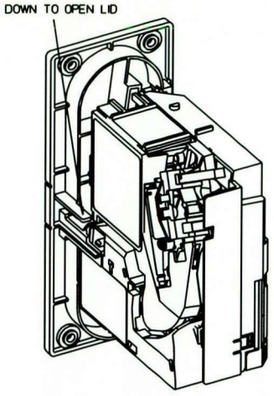


MINIMUM SUGGESTED PANEL CUT-OUT
FOR REAR MOUNTING.

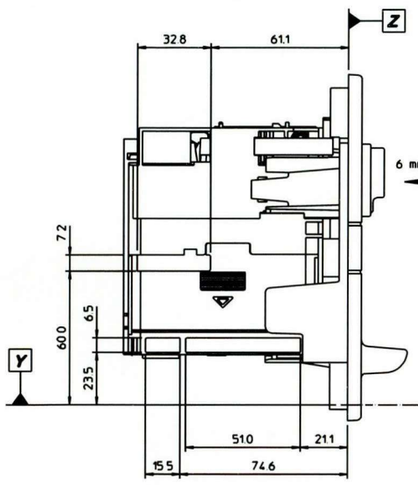
TOP VIEW



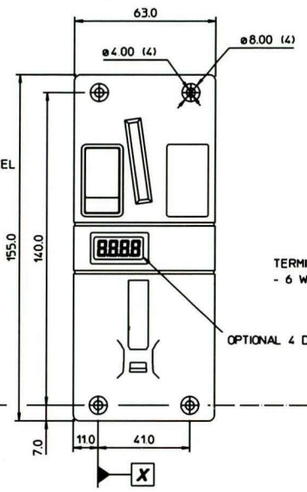
PRESS DOWN TO OPEN LID

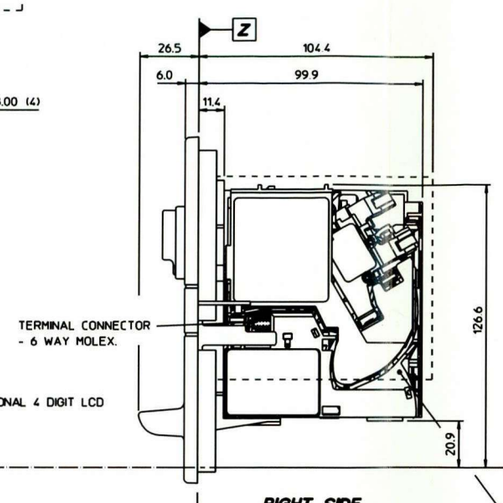


LEFT SIDE



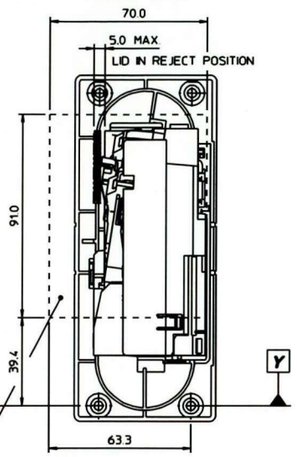
FRONT VIEW



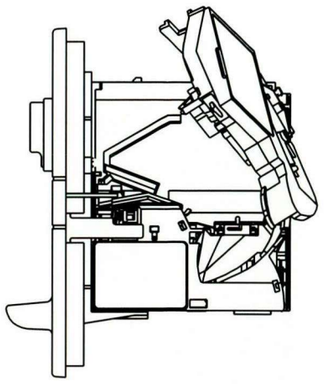


RIGHT SIDE

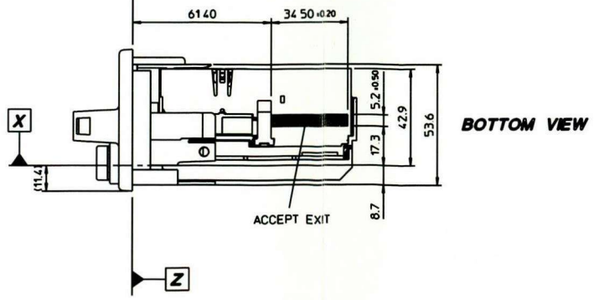
BACK VIEW



METALLIC OBJECTS PLACED WITHIN ZONE
SHOWN DOTTED MAY ADVERSELY AFFECT
PERFORMANCE.



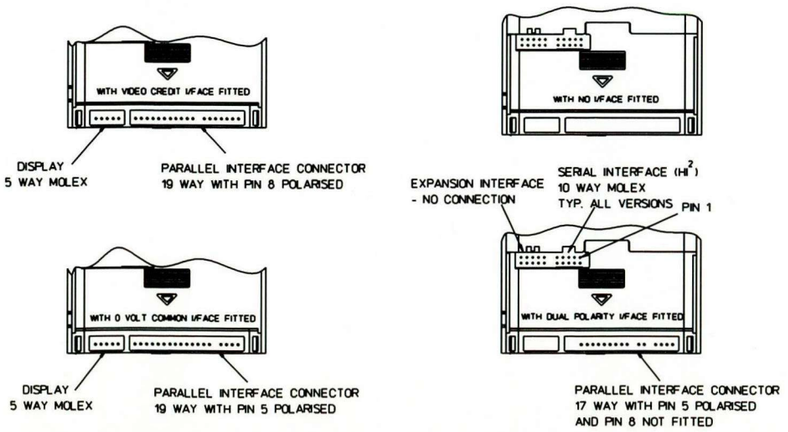
LID OPEN FOR CLEANING



BOTTOM VIEW

VIEWS SHOWING CONNECTOR VARIATIONS.
FRONTPLATE OMITTED FOR CLARITY.

NOTE: ALL CONNECTOR PINS ARE 0.635 SQUARE
AND ARE ON A 2.54 PITCH



WAS PART NUMBER -

DATE	DRN	ALTERATION	REV	ENG	MOD
01/06/92	MJB	INITIAL ISSUE	R1		15947
01/09/92	MJB		R2		

PROVISIONAL
SUBJECT TO CHANGE

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ANGULAR TOLERANCE ±1° | 1 DECIMAL PLACE ±0.2
2 DECIMAL PLACES ±0.1

THIRD ANGLE PROJECTION | DO NOT SCALE

MATERIAL SPEC. | APPD.

ORIGINALLY DRAWN BY MJB

SCALE 1:1 | PRODUCT TITAN | SHEET 1 OF 1

TITLE
INTERFACE DRAWING
MIDI - FRONTPLATE

SITE/GROUP	PART NO	REV	CLASS
30103	149281001	R2	ID

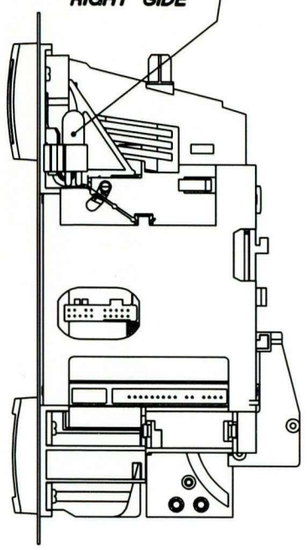
A0 PART NO. 149265001

COMPONENTS MAY VARY PICTORIALLY, BUT UNLESS STATED, CRITICAL DIMENSIONS WILL REMAIN UNAFFECTED

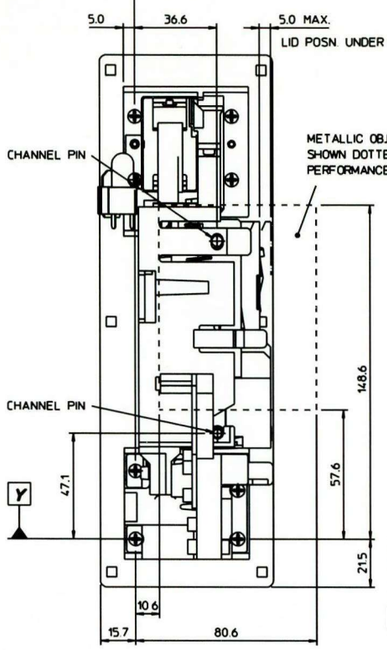
WAS PART NUMBER -					
DATE	DRN	ALTERATION	REV	ENG	MOD
01/06/92	MJB	INITIAL ISSUE	R1		15947
07/06/93	PEI	PICTORIAL MODS AND LAYOUT CHANGED ON SHEETS 1 & 2 PANEL CUT OUT DETAILS ADDED ACCEPTOR & SEPARATOR REMOVAL PROCEDURE ADDED TO SHEET 2	Y1		16135
25/08/93	AJR	LAYOUT CHANGED TO ACCOMMODATE "FINAL PRODUCT ASSY" VIEW (SHT. 2) REFERENCES TO 'BOTTOM REJECT' WERE 'INDIRECT REJECT'	Y2		16459
21/10/93	MMP	LAMP POSITION MOVED TO SIDE OF REJECT BUTTON FROM TOP OF CHANNEL RECOMMENDED SCREW LENGTHS ADDED TO MOUNTING DETAILS	G1		16831

OPTIONAL LAMP FOR COIN ENTRY AND REJECT BUTTON ILLUMINATION.
LAMP TYPE ø10mm WITH WEDGE BASE.
LAMP HOLDER ARIEL RA 3358 OR PRESSAC 21/2666 OR EQUIVALENT.

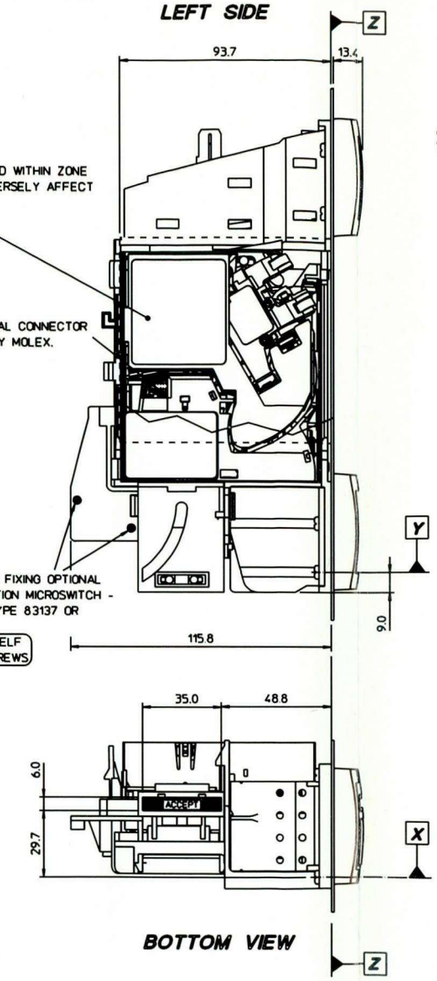
RIGHT SIDE



BACK VIEW

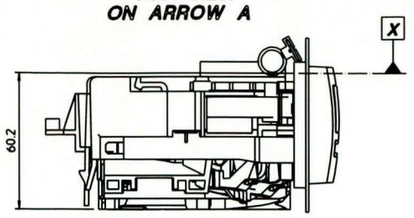


LEFT SIDE

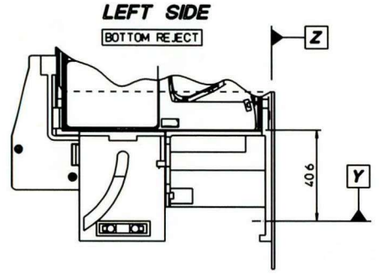


BOTTOM VIEW

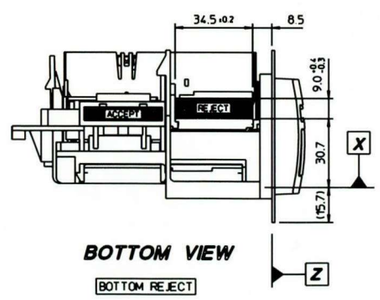
TOP VIEW ON ARROW A



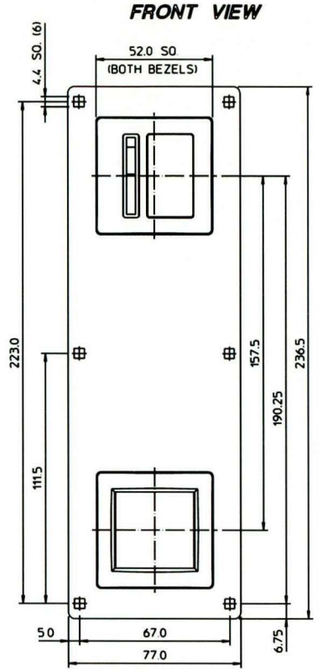
LEFT SIDE
BOTTOM REJECT



BOTTOM VIEW
BOTTOM REJECT



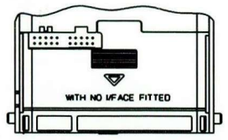
FRONT VIEW

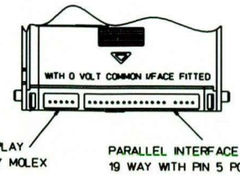


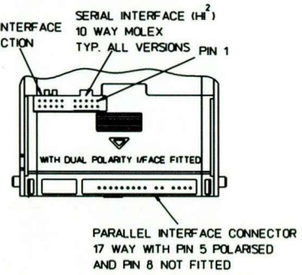
VIEWS SHOWING CONNECTOR VARIATIONS

FRONTPLATE CHANNEL OMITTED FOR CLARITY.

NOTE: ALL CONNECTOR PINS ARE 0.635 SQUARE AND ARE ON A 2.54 PITCH

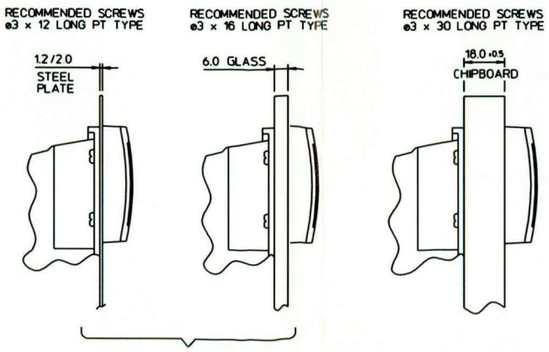






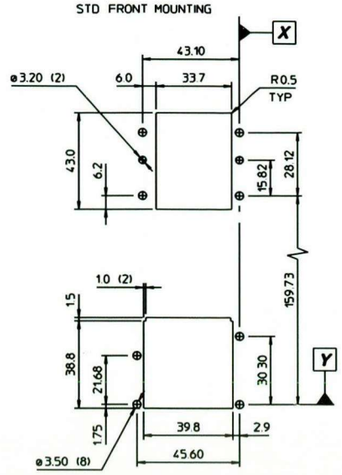
MOUNTING PANEL DETAILS

MOUNTING PANEL TYPE

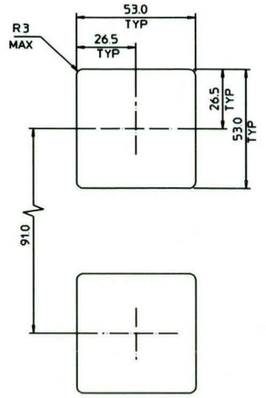


CUTOUT DETAILS
(VIEWED FROM FRONT)

STD FRONT MOUNTING



REAR MOUNTING



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ANGULAR TOLERANCE ±1° | 1 DECIMAL PLACE ±.02
2 DECIMAL PLACES ±.01

THIRD ANGLE PROJECTION | DO NOT SCALE

MATERIAL SPEC. | APPD. M.P.

ORIGINALLY DRAWN BY MJB

SCALE 1:1 | PRODUCT MAXI F/PLATE | SHEET 1 OF 2

TITLE INTERFACE DRAWING
MAXI - FRONTPLATE

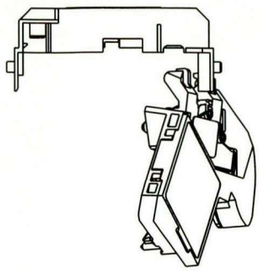
PART NO.	REV	CLASS
149265001	G1	ID

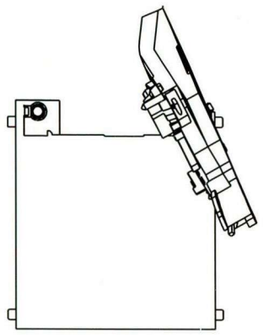
A0 PART NO. 149265001

CASHFLOW 430 MAXI
MAXI–FRONTPLATE WITH SEPARATOR MODULE, OPTIONAL THREE OR FIVE WAY SELECTION

(INDIRECT REJECT OPTION SHOWN)

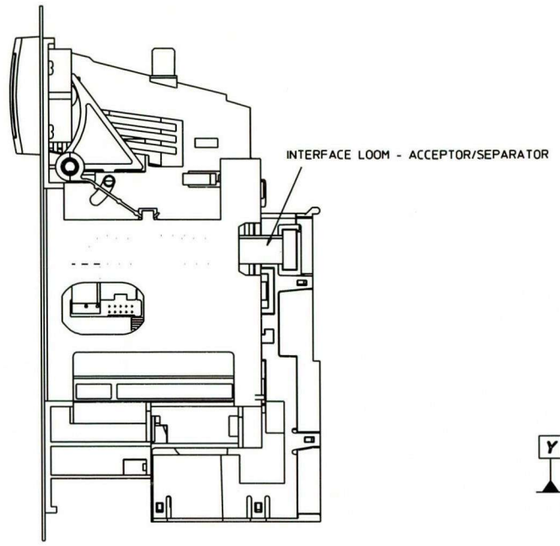
NOTE : EXITS 1 , 2 & 5 ARE USED FOR 3 WAY SEPARATOR OPTION

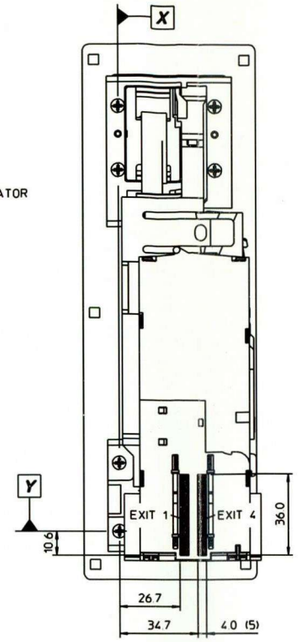




ACCEPTOR LID OPEN FOR CLEANING

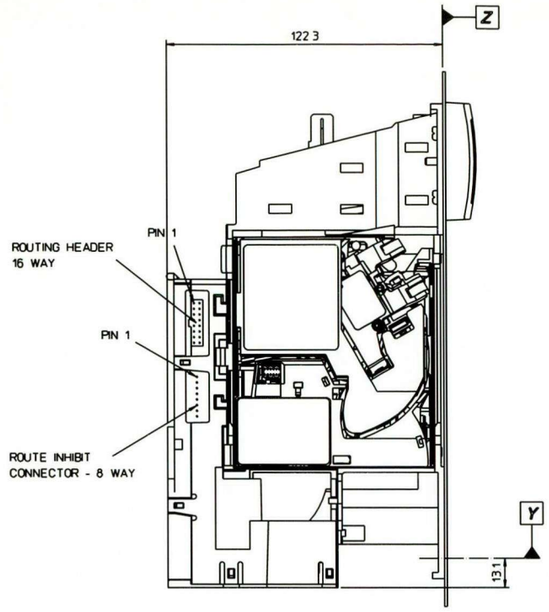
RIGHT SIDE

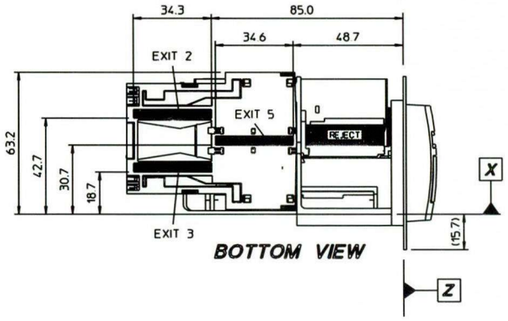




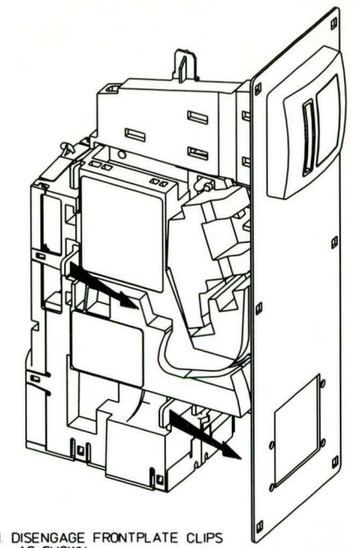
BACK VIEW

LEFT SIDE



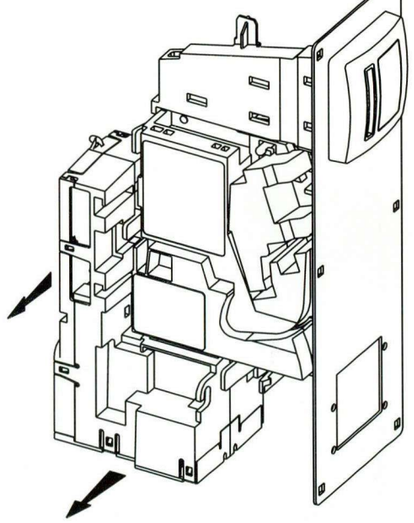


BOTTOM VIEW



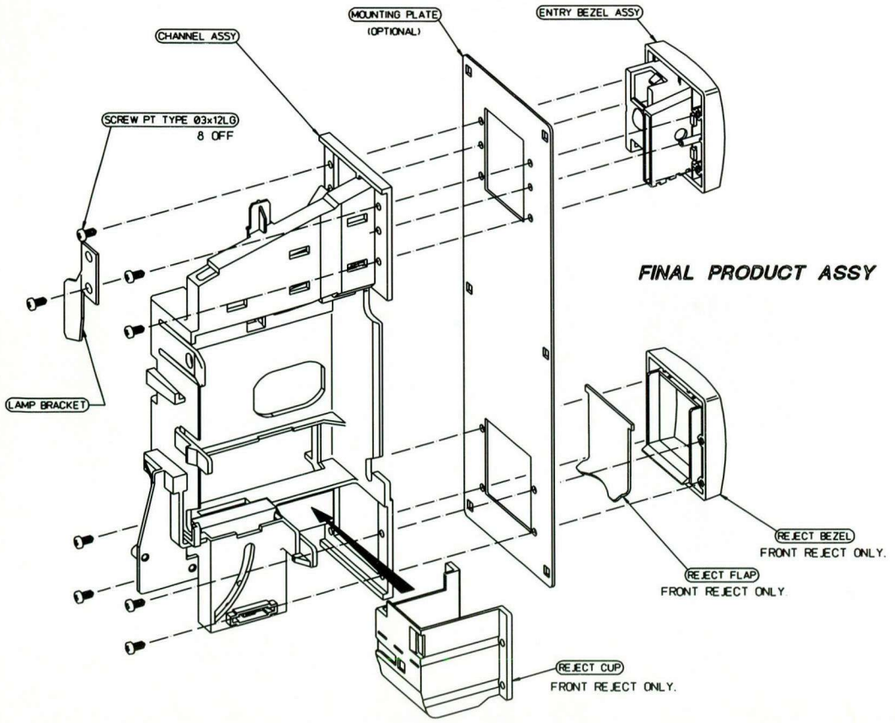
1 DISENGAGE FRONTPLATE CLIPS AS SHOWN

REMOVAL OF SEPARATOR FROM FRONTPLATE

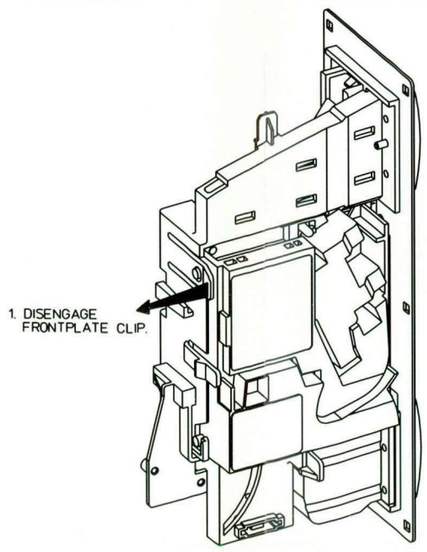


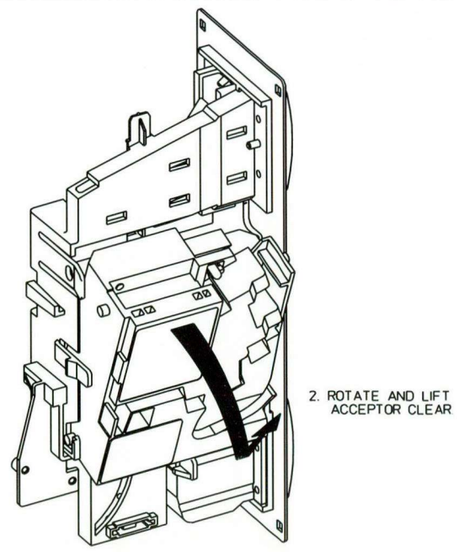
2. SLIDE OUT SEPARATOR IN DIRECTION SHOWN.

COMPONENTS MAY VARY PICTORIALLY, BUT UNLESS STATED, CRITICAL DIMENSIONS WILL REMAIN UNAFFECTED



FINAL PRODUCT ASSY





REMOVAL OF ACCEPTOR FROM FRONTPLATE

CONT SHEET 2 OF 2 READ WITH SHEET 1

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TITLE	INTERFACE DRAWING MAXI - FRONTPLATE		
PART NO		REV	CLASS
149265001		G1	ID

THE INTELLIGENT TRANSACTION™

REPRESENTATIVE:

MARS ELECTRONICS INTERNATIONAL®

UNITED STATES
1301 Wilson Drive
West Chester
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Eskdale Road
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